P.Z. br. 442

HRVATSKI SABOR

KLASA: 022-03/18-01/154
URBROJ: 65-18-02

Zagreb, 27. rujna 2018.

Hs**NP*022-03/18-01/154*65-18-02**Hs

ZASTUPNICAMA I ZASTUPNICIMA
HRVATSKOGA SABORA

PREDSJEDNICAMA I PREDSJEDNICIMA
RADNIH TIJELA

Na temelju članaka 178. i 192, a u svezi članka 207.a Poslovnika Hrvatskoga sabora u prilogu upućujem ***Konačni prijedlog zakona o potvrđivanju Izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine i dodavanje novih dodataka X. i XI.,*** koji je predsjedniku Hrvatskoga sabora podnijela Vlada Republike Hrvatske, aktom od 27. rujna 2018. godine.

Za svoje predstavnike, koji će u njezino ime sudjelovati u radu Hrvatskoga sabora i njegovih radnih tijela, Vlada je odredila dr. sc. Tomislava Ćorića, ministra zaštite okoliša i energetike, Milu Horvata i dr. sc. Marija Šiljega, državne tajnike u Ministarstvu zaštite okoliša i energetike, te Igora Čižmeka, pomoćnika ministra zaštite okoliša i energetike.

PREDSJEDNIK

Gordan Jandroković

P.Z. br. 442

VLADA REPUBLIKE HRVATSKE

Klasa: **022-03/18-11/79**
Urbroj: **50301-25/16-18-2**

Zagreb, 27. rujna 2018.

Hs**NP*022-03/18-01/154*50-18-01**Hs

PREDSJEDNIKU HRVATSKOGA SABORA

Predmet: Konačni prijedlog zakona o potvrđivanju Izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine i dodavanje novih dodataka X. i XI.

Na temelju članka 85. Ustava Republike Hrvatske (Narodne novine, br. 85/10 – pročišćeni tekst i 5/14 – Odluka Ustavnog suda Republike Hrvatske) i članka 207.a Poslovnika Hrvatskoga sabora (Narodne novine, br. 81/13, 113/16, 69/17 i 29/18), Vlada Republike Hrvatske podnosi Konačni prijedlog zakona o potvrđivanju Izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine i dodavanje novih dodataka X. i XI.

Za svoje predstavnike, koji će u njezino ime sudjelovati u radu Hrvatskoga sabora i njegovih radnih tijela, Vlada je odredila dr. sc. Tomislava Ćorića, ministra zaštite okoliša i energetike, Milu Horvata i dr. sc. Marija Šiljega, državne tajnike u Ministarstvu zaštite okoliša i energetike, te Igora Čižmeka, pomoćnika ministra zaštite okoliša i energetike.

REPUBLIKA HRVATSKA 2 VLADA REPUBLIKE HRVATSKE ZAGREB

PREDSJEDNIK

mr. sc. Andrej Plenković

VLADA REPUBLIKE HRVATSKE

KONAČNI PRIJEDLOG ZAKONA O POTVRĐIVANJU IZMJENA I DOPUNA TEKSTA I DODATAKA OD II. DO IX. PROTOKOLA O SUZBIJANJU ZAKISELJAVANJA, EUTROFIKACIJE I PRIZEMNOG OZONA IZ 1999. GODINE UZ KONVENCIJU O DALEKOSEŽNOM PREKOGRANIČNOM ONEČIŠĆENJU ZRAKA IZ 1979. GODINE I DODAVANJE NOVIH DODATAKA X. I XI.

Zagreb, rujan 2018.

KONAČNI PRIJEDLOG ZAKONA O POTVRĐIVANJU IZMJENA I DOPUNA TEKSTA I DODATAKA OD II. DO IX. PROTOKOLA O SUZBIJANJU ZAKISELJAVANJA, EUTROFIKACIJE I PRIZEMNOG OZONA IZ 1999. GODINE UZ KONVENCIJU O DALEKOSEŽNOM PREKOGRANIČNOM ONEČIŠĆENJU ZRAKA IZ 1979. GODINE I DODAVANJE NOVIH DODATAKA X. I XI.

I. USTAVNA OSNOVA

Ustavna osnova za donošenje Zakona o potvrđivanju Izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine i dodavanje novih dodataka X. i XI., sadržana je u članku 140. stavku 1. Ustava Republike Hrvatske (Narodne novine, br. 85/10 - pročišćeni tekst i 5/14 - Odluka Ustavnog suda Republike Hrvatske).

II. OCJENA STANJA I OSNOVNA PITANJA KOJA SE TREBAJU UREDITI ZAKONOM TE POSLJEDICE KOJE ĆE DONOŠENJEM ZAKONA PROISTEĆI

Konvencija o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine (u daljnjem tekstu: LRTAP Konvencija), sklopljena pod pokroviteljstvom Gospodarske komisije UN-a za Europu (UNECE), ključan je međunarodni zakonski okvir za suradnju i mjere sa svrhom ograničavanja, postupnog smanjivanja i sprječavanja onečišćenja zraka i njegovih štetnih učinaka na zdravlje ljudi i okoliš na teritoriju UNECE-a, s osobitim osvrtom na dalekosežno prekogranično onečišćenje zraka.

LRTAP Konvenciju čini osam Protokola, a potpisana je u ime Europske ekonomske zajednice 14. studenoga 1979. godine i odobrena Odlukom vijeća 81/462/EEZ od 11. lipnja 1981. godine. Republika Hrvatska stranka je sedam Protokola, uključujući i Protokol o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine sastavljenog 30. studenoga 1999. godine u Gothenburgu (Švedska). Republika Hrvatska potpisala je Protokol 1999. godine, a stupio je na snagu u odnosu na Republiku Hrvatsku 5. siječnja 2009. godine (Narodne novine – Međunarodni ugovori, broj 4/08) (u daljnjem tekstu: Protokol).

Cilj Protokola je određivanje nacionalnih gornjih granica emisija mnogostrukih onečišćivača, kako bi se spriječila ili na najmanju mjeru svela prekoračenja kritičnih opterećenja zakiseljavanja, opterećenja hranjivim dušikom i kritičnih razina ozona na ljudsko zdravlje i okoliš. Spomenute gornje granice svaka ugovorna strana mora ostvariti do 2010. godine i nakon toga, a obuhvaćaju sumpor (uglavnom SO_2), dušikove okside (NOx), amonijak (NH_3) i hlapive organske spojeve osim metana (HOS-evi). Granične vrijednosti emisija onečišćujućih tvari u zraku iz pokretnih i nepokretnih izvora utvrđene su Dodatcima i prilozima Protokola, s ciljem potpore ostvarenju nacionalnih gornjih granica emisija.

U skladu s člankom 10. stavkom 2. Protokola, 2007. godine stranke Protokola s ciljem daljnjeg poboljšanja zaštite zdravlja ljudi i okoliša, između ostalog utvrđivanjem novih obveza smanjenja emisija za određene onečišćujuće tvari u zraku koje treba ostvariti do 2020. godine i nakon toga te ažuriranjem graničnih vrijednosti emisija rješavanjem emisija onečišćujućih tvari u zraku na izvoru, otvorile su pregovaranje vezano uz izmjenu Protokola. Tijekom pregovaračkog procesa, stranke prisutne na 30. zasjedanju Izvršnog tijela LRTAP

Konvencije postigle su konsenzus, rezultiran Odlukama Izvršnog tijela 2012/1 i 2012/2. U skladu s tim Odlukama, izmijenjen je tekst Protokola i njegovih Dodataka te su dodana dva nova Dodatka X. i XI. Nadalje, konsenzusom su donesene i dodatne dvije odluke o provedbi odredaba Protokola, a obuhvaćaju privremenu primjenu prilagodbi na nacionalne obveze smanjenja emisija ili na nacionalne inventare emisija.

Iako stranke nisu dužne ratificirati Odluku Izvršnog tijela 2012/1, kojom se ažuriraju definicije kritičnih opterećenja i kritičnih razina, a priopćena je svim potpisnicima Protokola 7. ožujka 2013. godine, ona je stupila na snagu 5. lipnja 2013. godine.

Nasuprot tome, Odluku Izvršnog tijela 2012/2, koja mijenja glavni tekst Protokola i svi Dodaci Protokola (osim Dodatka I.), stranke su dužne ratificirati u skladu s člankom 13. stavkom 3. Protokola. Tim izmjenama Protokola utvrđuju se nove nacionalne obveze smanjenja emisija za četiri prethodno navedena onečišćivača zraka te za tvari sitnih čestica ($PM_{2,5}$) koje je potrebno ostvariti do 2020. godine i nakon toga. Nadalje, izmjenama Protokola promiče se smanjenje emisija za crni ugljik, ažuriraju granične vrijednosti emisija utvrđene u Dodatcima Protokolu, utvrđuju nove norme za sadržaj HOS-eva u proizvodima te upotpunjava obveza izvješćivanja potpisnica u pogledu emisija onečišćujućih tvari u zraku, kao i razvoja u području tehnologije i istraživanja.

Odlukom vijeća (EU) 2017/1757, u ime Europske unije prihvaćene su izmjene Protokola iz 1999. godine o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine.

Mjerodavno nacionalno zakonodavstvo Republike Hrvatske koje je na snazi već je usklađeno s Izmjenama i dopunama Protokola čime su ostvarene pretpostavke za ispunjavanje obveza koje će proizaći iz predloženog Prijedloga zakona čime će se doprinijeti krajnjem cilju, daljnjem poboljšanju zaštite zdravlja ljudi i okoliša, između ostalog utvrđivanjem novih obveza smanjenja emisija za određene onečišćujuće tvari u zraku koje treba ostvariti do 2020. godine i nakon toga, kako u Republici Hrvatskoj tako i državama u regiji te omogućiti brže stupanje na snagu izmjena i dopuna Protokola.

Ovim Zakonom potvrđuju se usvojene Izmjene i dopune Protokola, Dodataka Protokola i umetanje novih Dodataka X. i XI., kako bi njihove odredbe, u smislu članka 141. Ustava Republike Hrvatske postale dio unutarnjeg pravnog poretka Republike Hrvatske. Protokol sadrži pravno obvezujuće obveze smanjenja emisija određenih onečišćujućih tvari zrak. Izmjenama i dopunama Protokola, Dodataka Protokola i umetanje novih Dodataka X. i XI., utvrđuju se posebno strože granične vrijednosti emisija za određene onečišćujuće tvari i čestice iz određenih pokretnih i nepokretnih izvora za stranke Protokola do 2020. godine i nakon toga.

III. OSNOVNA PITANJA KOJA SE UREĐUJU PREDLOŽENIM ZAKONOM

Ovim Zakonom potvrđuju se usvojene Izmjene teksta Protokola, Dodataka od II. do IX. Protokola i umetanje novih Dodataka X. i XI., kako bi njegove odredbe, u smislu članka 141. Ustava Republike Hrvatske postale dio unutarnjeg pravnog poretka Republike Hrvatske. Protokol sadržava pravno obvezujuće obveze smanjenja emisija određenih onečišćujućih tvari u zrak.

Izmijenjenim Protokolom utvrđuju se posebno strože granične vrijednosti emisija za određene onečišćujuće tvari i čestice iz određenih pokretnih i nepokretnih izvora utvrđuju se posebno

strože granične vrijednosti emisija za čestice iz određenih pokretnih i nepokretnih izvora za stranke Protokola do 2020. godine i nakon toga.

IV. OCJENA I IZVORI POTREBNIH SREDSTAVA ZA PROVOĐENJE ZAKONA

Za provedbu ovoga Zakona nije potrebno osigurati dodatna financijska sredstva iz državnog proračuna Republike Hrvatske.

V. PRIJEDLOG ZA DONOŠENJE ZAKONA

Temelj za donošenje ovoga Zakona nalazi se u odredbi članka 207.a Poslovnika Hrvatskoga sabora (Narodne novine, br. 81/13, 113/16, 69/17 i 29/18).

Uzimajući u obzir razloge navedene u točkama II. i III. ovoga Zakona, predlaže se Konačni prijedlog zakona raspraviti i prihvatiti u jednom čitanju.

KONAČNI PRIJEDLOG ZAKONA O POTVRĐIVANJU IZMJENA I DOPUNA TEKSTA I DODATAKA OD II. DO IX. PROTOKOLA O SUZBIJANJU ZAKISELJAVANJA, EUTROFIKACIJE I PRIZEMNOG OZONA IZ 1999. UZ KONVENCIJU O DALEKOSEŽNOM PREKOGRANIČNOM ONEČIŠĆENJU ZRAKA IZ 1979. GODINE I DODAVANJE NOVIH DODATAKA X. I XI.

Članak 1.

Potvrđuje se Izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine i dodavanje novih dodataka X. i XI., usvojena u Ženevi 4. srpnja 2012. godine Odlukom 2012/2 na 30. sjednici Izvršnog tijela Konvencije o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine, u izvorniku na engleskom, francuskom i ruskom jeziku.

Članak 2.

Izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine i dodavanje novih Dodataka X. i XI. iz članka 1. ovoga Zakona, u izvorniku na engleskom te u prijevodu na hrvatski jezik, glasi:

Izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine i dodavanje novih dodataka X. i XI.

Članak 1.
Izmjena

Stranke Stranke Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog sloja ozona iz 1999. godine, koje su se sastale na trinaestoj sjednici Izvršnog tijela,

odlučile su izmijeniti Protokol o suzbijanju zakiseljavanja, eutrofikacije i prizemnog sloja ozona iz (Gothenburški protokol) 1999. godine uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka kako je navedeno u dodatku ove Odluke.

Članak 2.
Odnos prema Gothenburškom protokolu

Ni jedna država ni regionalna organizacija ekonomske integracije ne smije položiti ispravu o prihvaćanju ove izmjene i dopune ako prethodno ili istovremeno nije položila ispravu o ratifikaciji, prihvaćanju ili odobrenju Gothenburškog protokola.

Članak 3.
Stupanje na snagu

U skladu s člankom 13. stavkom 3. Gothenburškog protokola, ova izmjena i dopuna stupa na snagu devedesetog dana nakon dana na koji su dvije trećine stranaka Protokola položile kod depozitara svoje isprave o prihvaćanju navedene izmjene.

Dodatak

A. Preambula

1. U stavku 2. preambule riječi „hlapivi organski spojevi i reducirani spojevi dušika" zamjenjuju se riječima „hlapivi organski spojevi, reducirani spojevi dušika i čestice".

2. U stavku 3. preambule riječi „i čestica" umeću se iza riječi „ozona".

3. U stavku 4. preambule riječi „sumpora i hlapivih organskih spojeva, kao i sekundarnih onečišćujućih tvari poput ozona" zamjenjuju se riječima „sumpora, hlapivih organskih spojeva, amonijaka i izravno emitiranih čestica, kao i sekundarnih onečišćujućih tvari poput ozona, čestica".

4. Između stavaka 4. i 5. preambule dodaje se sljedeći stavak preambule:

„*Shvaćajući* procjene znanstvenih spoznaja međunarodnih organizacija poput Programa Ujedinjenih naroda za okoliš, i Arktičkog vijeća u pogledu ostvarenja dobrobiti za ljudsko zdravlje i klimu smanjenjem crnog ugljika i prizemnog ozona, posebno u arktičkim i alpskim regijama,".

5. Stavak 6. preambule zamjenjuje se kako slijedi:

„*Također shvaćajući* kako Kanada i Sjedinjene Američke Države dvostrano rješavaju prekogranično onečišćenje zraka u okviru Ugovora o kvaliteti zraka između Kanade i Sjedinjenih Američkih Država kojim su obuhvaćene obveze obje države u pogledu smanjenja emisija sumporovog dioksida, dušikovih oksida i hlapivih organskih spojeva te kako dvije države razmatraju uključivanje obveza smanjenja emisija čestica,".

6. Stavak 7. preambule zamjenjuje se kako slijedi:

„*Shvaćajući uz to* da se Kanada obvezala na smanjenje sumporovog dioksida, dušikovih oksida, hlapivih organskih spojeva i čestica kako bi udovoljila kanadskim standardima kvalitete zraka za ozon i čestice te nacionalnom cilju smanjenja zakiseljavanja te da su se Sjedinjene Države obvezale na provedbu programa smanjenja dušikovih oksida, sumporovog dioksida, hlapivih organskih spojeva i čestica kako bi se ispunili nacionalni standardi u pogledu kvalitete zraka za ozon i čestice radi neprekidnog napredovanja u smanjenju učinaka zakiseljavanja i eutrofikacije te radi poboljšanja vidljivosti i u nacionalnim parkovima i na gradskim područjima,".

7. Stavci 9. i 10. preambule zamjenjuju se sljedećim stavcima preambule:

„*Uzimajući u obzir* znanstvene spoznaje o prijenosu onečišćenja zraka između hemisfera, utjecaju ciklusa dušika i mogućim sinergijskim učincima i uzajamnim odnosima između onečišćenja zraka i klimatskih promjena,

Svjesne da emisije iz brodskog i zračnog prijevoza u značajnoj mjeri doprinose razvoju nepovoljnih učinaka na ljudsko zdravlje i okoliš te da su to bitna pitanja kojima se bavi Međunarodna pomorska organizacija i Međunarodna organizacija civilnog zrakoplovstva,".

8. U stavku 15. preambule riječi „amonijaka i hlapivih organskih spojeva" zamjenjuju se riječima „amonijaka, hlapivih organskih spojeva i čestica".

9. U stavku 19. preambule riječi „i čestica, uključujući crni ugljik" umeću se iza riječi „dušikovih spojeva".

10. Stavci 20. i 21. preambule brišu se.

11. U stavku 22. preambule:

(a) riječi „i amonijaka" zamjenjuju se riječima „i reduciranih spojeva dušika";

i

(b) riječi „uključujući dušikov oksid" zamjenjuju se riječima „uključujući dušikov oksid i razine nitrata u ekosustavima,".

12. U stavku 23. preambule riječ „troposferskog" zamjenjuje se riječju „prizemnog".

B. Članak 1.

1. Iza stavka 1. dodaje se sljedeći stavak:

„1.a Pojmovi "ovaj Protokol", „Protokol" znače Protokol o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999., s povremenim izmjenama.".

2. Na kraju stavka 9. dodaju se riječi „izraženi kao amonijak (NH3)".

3. Iza stavka 11. dodaju se sljedeći stavci:

„11.a,Čestice' ili ‚PM' tvar je koja onečišćuje zrak koja se sastoji od smjese čestica raspršenih u zraku. Te se čestice razlikuju po svojim fizikalnim svojstvima (poput veličine i oblika) i kemijskom sastavu. Osim ako je navedeno drukčije, sva upućivanja na čestice u ovom Protokolu odnose se na čestice čiji je aerodinamički promjer jednak ili manji od 10 mikrona (μm) (PM10), uključujući one čiji je aerodinamički promjer jednak ili manji od 2,5 μm (PM2,5);

11.b,Crni ugljik' znači ugljična čestica koja upija svjetlost;

11.c,Prethodnici ozona' znači dušikovi oksidi, hlapivi organski spojevi, metan i ugljikov monoksid;".

4. U stavku 13. iza riječi „atmosferi" umeću se riječi „ili strujanjima prema receptorima".

5. U stavku 15. riječi „hlapive organske spojeve ili amonijak" zamjenjuju se riječima „hlapive organske spojeve, amonijak ili čestice".

6. Stavak 16. zamjenjuje se kako slijedi:

„„Novi stacionarni izvor' znači svaki stacionarni izvor čija je izgradnja, odnosno bitna izmjena započeta nakon isteka godine dana od datuma stupanja na snagu ovoga Protokola za stranku ovog Protokola. Stranka može odlučiti da novi stacionarni izvor nije svaki stacionarni izvor koji su već odobrila odgovarajuća nadležna nacionalna tijela u vrijeme stupanja na snagu Protokola za tu stranku, a pod uvjetom da je izgradnja, odnosno bitna izmjena započeta unutar 5 godina od tog datuma. Nadležna nacionalna tijela odlučuju je li izmjena bitna ili ne, uzimajući u obzir čimbenike poput koristi za okoliš koju izmjena predstavlja.".

C. Članak 2.

1. U uvodnoj frazi:

(a) ispred riječi „Cilj ovog Protokola" umeće se „1.";

(b) riječi „amonijaka i hlapivih organskih spojeva" zamjenjuju se riječima „amonijaka, hlapivih organskih spojeva i čestica";

(c) riječi „i okoliš" umeću se iza „ljudsko zdravlje";

(d) riječi „materijale i usjeve" zamjenjuju se riječima „materijale, usjeve i klimu u kratkoročnom i dugoročnom razdoblju"; i

(e) riječ „, čestica" umeće se iza riječi „eutrofikacije".

2. Riječi „kojima se dopušta oporavak ekosustava" umeću se na kraju podstavka (a).

3. U podstavku (b) riječi „kojima se dopušta oporavak ekosustava" dodaju se na kraju podstavka, a iza točke sa zarezom briše se riječ „i".

4. U podstavku (c) točki ii., riječi „kanadski standard" zamjenjuju se riječima „kanadski standard kvalitete zraka".

5. Iza podstavka (c) dodaju se novi podstavci (d), (e) i (f) kako slijedi:

(d) za čestice:

(i) za stranke unutar zemljopisnog obuhvata EMEP-a, kritične razine čestica, kako se navodi u Dodatku I.;

(ii) za Kanadu, kanadski standardi kvalitete zraka za čestice; i

(iii) za Sjedinjene Američke Države, nacionalni standardi kvalitete zraka za čestice;

(e) za stranke unutar zemljopisnog obuhvata EMEP-a, kritične razine amonijaka, kako se navodi u Dodatku I.; i

(f) za stranke unutar zemljopisnog obuhvata EMEP-a, prihvatljive razine tvari koje onečišćuju zrak radi zaštite materijala, kako se navodi u Dodatku I.".

6. Na kraju članka 2. dodaje se novi stavak 2. kako slijedi:
„2. Sljedeći se cilj odnosi na to da bi stranke trebale, pri provedbi mjera radi ispunjavanja svojih nacionalnih ciljeva u pogledu čestica, dati prednost, u mjeri koju smatraju odgovarajućom, mjerama smanjenja emisija kojima se značajno smanjuje i crni ugljik, kako bi ostvarile koristi za ljudsko zdravlje i okoliš i doprinijele ublaživanju kratkoročnih klimatskih promjena.".

D. Članak 3.

1. U stavku 1.:

(a) riječi „najveća vrijednost" u prvom retku zamjenjuju se riječima „obveza smanjenja";

(b) „najvećim vrijednostima" u drugom retku zamjenjuju se riječju „obvezama"; i

(c) riječi „Pri poduzimanju koraka za smanjenje emisija čestica svaka bi stranka trebala zahtijevati smanjenja od onih kategorija izvora za koje se zna da ispuštaju emisije velikih količina crnog ugljika, u mjeri koju smatraju odgovarajućom." dodaju se na kraju stavka.

2. U stavcima 2. i 3. riječi „V. i VI." zamjenjuju se riječima „V., VI. i X.".

3. Riječi „U skladu sa stavcima 2.a i 2.b," umeću se na početak stavka 2.

4. Novi stavci 2.a i 2.b umeću se kako slijedi:

2.a Stranka, koja je već bila stranka ovog Protokola prije stupanja na snagu izmjene kojom se uvode nove kategorije izvora, može primijeniti granične vrijednosti primjenjive za ‚postojeći stacionarni izvor' na svaki stacionarni izvor u toj novoj kategoriji čija je izgradnja, odnosno bitna izmjena započeta prije isteka godine dana od datuma stupanja na snagu te izmjene za tu stranku, osim ako i sve dok se taj izvor kasnije ne podvrgne bitnoj izmjeni.

2.b Stranka, koja je već bila stranka ovog Protokola prije stupanja na snagu izmjene kojom se uvode nove granične vrijednosti primjenjive za ‚novi stacionarni izvor' može nastaviti primjenjivati prethodno primjenjive granične vrijednosti na svaki izvor čija je izgradnja, odnosno bitna izmjena započeta prije isteka godine dana od datuma stupanja na snagu te izmjene za tu stranku, osim ako i sve dok se taj izvor kasnije ne podvrgne bitnoj izmjeni.".

5. Stavak 4. briše se.

6. Stavak 6. zamjenjuje se kako slijedi:

Svaka bi stranka trebala primjenjivati najbolje raspoložive tehnike na pokretne izvore obuhvaćene Dodatkom VIII. i na svaki stacionarni izvor obuhvaćen dodacima IV., V., VI. i X. te, kako to smatra prikladnim, mjere za nadziranje crnog ugljika kao sastavnog dijela čestica, uzimajući u obzir smjernice koje je donijelo izvršno tijelo.

7. Stavak 7. zamjenjuje se kako slijedi:

Svaka stranka primjenjuje granične vrijednosti u pogledu sadržaja HOS-eva proizvoda kako je utvrđeno Dodatkom XI., u mjeri u kojoj je to tehnički i gospodarski izvedivo uzimajući u obzir troškove i prednosti, u skladu s rokovima utvrđenima Dodatkom VII.

8. U stavku 8. točki (b):

(a) riječi „smjernici V." i „na sedamnaestom zasjedanju Izvršnog tijela (Odluka 1999/1) i u svim njihovim izmjenama i dopunama" brišu se; i

(b) na kraju stavka dodaje se sljedeća rečenica:

Posebnu pažnju trebalo bi posvetiti smanjenjima emisija amonijaka iz značajnih izvora amonijaka za tu stranku.

9. U stavku 9. točki (b), riječi „amonijaka i/ili hlapivih organskih spojeva koje pridonose zakiseljavanju, eutrofikaciji ili stvaranju ozona" zamjenjuju se riječima „amonijaka, hlapivih organskih spojeva i/ili čestica koje pridonose zakiseljavanju, eutrofikaciji ili stvaranju ozona ili povećanim razinama čestica".

10. U stavku 10. točki (b) riječi „sumpor i/ili hlapivi organski spojevi" zamjenjuju se riječima „sumpor, hlapivi organski spojevi i/ili čestice".

11. Stavak 11. zamjenjuje se kako slijedi:

Kanada i Sjedinjene Američke Države, po ratifikaciji, prihvatu, odobrenju, odnosno pristupu ovom Protokolu ili izmjenama navedenima u Odluci 2012/2, Izvršnom tijelu dostavljaju svoje odgovarajuće obveze smanjenja emisija s obzirom na sumpor, dušikove okside i hlapive organske spojeve i čestice radi njihova automatskog uključenja u Dodatak II.".

12. Iza stavka 11. dodaju se novi stavci kako slijedi:

11.a Kanada isto tako po ratifikaciji, prihvatu, odobrenju, odnosno pristupu ovom Protokolu, Izvršnom tijelu dostavlja mjerodavne granične vrijednosti radi njihova automatskog uključenja u dodatke IV., V., VI., VIII., X. i XI.

11.b Svaka stranka priprema i vodi popise i predviđanja u pogledu emisija sumporovog dioksida, dušikovih oksida, amonijaka, hlapivih organskih spojeva i čestica. Stranke, unutar zemljopisnog obuhvata EMEP-a, koriste metodologije utvrđene smjernicama koje je pripremilo Upravljačko tijelo EMEP-a, a koje su Stranke donijele na zasjedanju Izvršnog tijela. Stranke na područjima izvan zemljopisnog obuhvata EMEP-a kao smjernice koriste metodologije koje je izradilo Izvršno tijelo putem svojeg plana rada.

11.c Svaka bi stranka na temelju Konvencije trebala aktivno sudjelovati u programima o učincima onečišćenja zraka na ljudsko zdravlje i okoliš.

11.d Radi usporedbe ukupnih nacionalnih emisija s obvezama smanjenja emisija utvrđenima stavkom 1. stranka može primijeniti postupak utvrđen odlukom Izvršnog tijela. Takvim su postupkom obuhvaćene odredbe o dostavi popratne dokumentacije i o reviziji primjene postupka.

E. Članak 3.a

1. Novi članak 3.a dodaje se kako slijedi:

Članak 3.a
Fleksibilna prijelazna rješenja

1. Neovisno o članku 3. stavcima 2., 3., 5. i 6. stranka Konvencije koja postaje strankom ovog Protokola u razdoblju između 1. siječnja 2013. i 31. prosinca 2019. može primijeniti fleksibilna prijelazna rješenja za provedbu graničnih vrijednosti utvrđenih dodacima VI. i/ili VIII. u skladu s uvjetima utvrđenima ovim člankom.

2. Svaka stranka koja bira primjenu fleksibilnih prijelaznih rješenja na temelju ovog članka, u svojoj ispravi o ratifikaciji, prihvatu ili odobrenju

(a) posebne odredbe dodataka VI. i/ili VIII. u pogledu kojih stranka bira primjenu fleksibilnih prijelaznih rješenja; i

(b) plan provedbe kojim se utvrđuje terminski plan za potpunu provedbu navedenih odredbi.

3. Planom provedbe iz stavka 2. točke (b) predviđa se barem provedba graničnih vrijednosti za nove i postojeće stacionarne izvore utvrđene tablicama 1. i 5. Dodatka VI. i tablicama 1., 2., 3., 13. i 14. Dodatka VIII. u roku od najviše osam godina od stupanja na snagu ovog Protokola za stranku, odnosno do 31. prosinca 2022., ovisno o tome što dolazi ranije.

4. Ni u kojem se slučaju provedba graničnih vrijednosti za nove i postojeće stacionarne izvore utvrđenih Dodatkom VI. ili Dodatkom VIII. ne može odgoditi nakon 31. prosinca 2030.

5. Stranka koja odabere primjenu fleksibilnih prijelaznih rješenja na temelju ovog članka dostavlja Izvršnom tajniku Komisije trogodišnje izvješće o svojem napretku u pogledu provedbe Dodatka VI. i/ili Dodatka VIII. Izvršni tajnik Komisije stavit će navedena trogodišnja izvješća na raspolaganje Izvršnom tijelu."

F. Članak 4.

1. U stavku 1. riječi „amonijaka i hlapivih organskih spojeva" zamjenjuju se riječima „amonijaka, hlapivih organskih spojeva i čestica, uključujući crni ugljik".

2. U stavku 1. točki (a) riječi „plamenika s malim emisijama i dobre prakse zaštite okoliša u poljoprivredi" zamjenjuju se riječima „plamenika s malim emisijama, dobre prakse zaštite okoliša u poljoprivredi i mjera za koje je poznato da ublažavaju emisije crnog ugljika kao sastavnog dijela čestica".

G. Članak 5

1. U stavku 1. točki (a):

(a) riječi „amonijaka i hlapivih organskih spojeva" zamjenjuju se riječima „amonijaka, hlapivih organskih spojeva i čestica, uključujući crni ugljik"; i

(b) riječi „nacionalnih gornjih vrijednosti emisija" zamjenjuju se riječima „obvezama smanjenja emisija i".

2. Stavak 1. točka (c) zamjenjuje se kako slijedi:

(c) razinama prizemnog ozona i čestica;

3. U stavku 1. točki (d), "6." se zamjenjuje sa "6.; i".

4. Novi stavak 1. točka (e) dodaje se kako slijedi:

(e) poboljšanjima za ljudsko zdravlje i okoliš povezanima s ispunjavanjem obveza smanjenja emisija za 2020. i dalje kako je navedeno u Dodatku II. Za države unutar zemljopisnog obuhvata EMEP-a informacije o tim poboljšanjima navest će se u smjernicama koje donese Izvršno tijelo.

5. U stavku 2. točki (e):

(a) riječi „zdravlje i okoliš" zamjenjuju se riječima „ljudsko zdravlje, okoliš i klimu"; i

(b) riječi „smanjenje" umeću se iza riječi „vezanima uz".

H. Članak 6.

1. Članak 6. 1. U stavku 1. točki (b) riječi „amonijaka i hlapivih organskih spojeva" zamjenjuju se riječima „amonijaka, hlapivih organskih spojeva i čestica".

2. U stavku 1. točki (f) brišu se riječi „smjernicama od I. do V." i „na sedamnaestom zasjedanju Izvršnog tijela (Odluka 1999/1) i svih njihovih izmjena".

3. U stavku 1. točki (g) brišu se riječi „smjernici IV." i „na sedamnaestom zasjedanju Izvršnog tijela (Odluka 1999/1) i svih njezinih izmjena".

4. U stavku 1. točki (h) riječi „amonijaka i hlapivih organskih spojeva" zamjenjuju se riječima „amonijaka, hlapivih organskih spojeva i čestica".

5. Stavak 2. zamjenjuje se kako slijedi:

Svaka stranka prikuplja i ažurira informacije o sljedećem:

(a) vanjskim koncentracijama i taloženjima sumpora i dušikovih spojeva;

(b) vanjskim koncentracijama ozona, hlapivih organskih spojeva i čestica; i

(c) prema mogućnosti, procjeni izloženosti prizemnom ozonu i česticama.

Svaka stranka prema mogućnostima isto tako prikuplja i održava informacije o učincima svih navedenih onečišćujućih tvari na ljudsko zdravlje, kopnene i vodene ekosustave, materijale i klimu. Stranke unutar zemljopisnog obuhvata EMEP-a trebale bi koristiti smjernice koje je donijelo Izvršno tijelo. Stranke izvan zemljopisnog obuhvata EMEP-a trebale bi kao smjernice koristiti metodologije koje je izradilo Izvršno tijelo putem svojeg plana rada.".

6. Novi stavak 2.a dodaje se kako slijedi:

2.a Svaka bi stranka isto tako u mjeri koju smatra odgovarajućom trebala pripremati i voditi inventare i projekcije u pogledu emisija crnog ugljika slijedeći smjernice koje je donijelo Izvršno tijelo.

I. Članak 7.

1. U stavku 1. točki (a) podtočki (ii) riječi „stavka 3." zamjenjuju se riječima „stavaka 3. i 7.".

2. Uvodna fraza iz stavka 1. točke (b) zamjenjuje se sljedećim:

(b) svaka stranka koja se nalazi unutar zemljopisnog obuhvata EMEP-a dostavlja EMEP-u putem izvršnog tajnika Komisije sljedeće informacije o emisijama sumporovog dioksida, dušikovih oksida, amonijaka, hlapivih organskih spojeva i čestica na temelju smjernica koje je pripremilo Upravljačko tijelo EMEP-a, a donijelo Izvršno tijelo:".

3. U stavku 1. točki (b) podtočki (i) brišu se riječi „sumpora, dušikovih oksida, amonijaka i hlapivih organskih spojeva".

4. U stavku 1. točki (b) podtočki (ii).:

(a) riječi „svake tvari" brišu se; i

(b) broj „(1990.)" zamjenjuje se riječima „kako je utvrđeno Dodatkom II.".

5. U stavku 1. točki (b) podtočki (iii) brišu se riječi „i tekućim planovima smanjenja".

6. Stavak 1. točka (b) podtočki (iv) zamjenjuje se kako slijedi:

(iv) informativnom izvješću o inventaru kojim su obuhvaćene detaljne informacije o prijavljenim inventarima i projekcijama emisija;".

7. Novi stavak 1. točka (b.a) dodaje se kako slijedi:

(b.a) Svaka stranka unutar zemljopisnog obuhvata EMEP-a trebala bi putem izvršnog tajnika Komisije dostaviti dostupne informacije o svojim programima učinaka onečišćenja zraka na ljudsko zdravlje i okoliš te o programima atmosferskog nadzora i izrade modela na temelju ove Konvencije slijedeći smjernice koje je donijelo Izvršno tijelo;

8. Stavak 1. točka (c) zamjenjuje se kako slijedi:

(c) Stranke koje se nalaze na područjima izvan zemljopisnog obuhvata EMEP-a dostavljaju dostupne informacije o razinama emisija, uključujući informacije za referentnu godinu utvrđenu Dodatkom II., koje se odnose na zemljopisno područje obuhvaćeno njihovim obvezama smanjenja emisija. Stranke koje se nalaze na područjima izvan zemljopisnog obuhvata EMEP-a trebale bi prosljeđivati Izvršnom tijelu slične informacije kao u podstavku (ba), ako se to od njih zatraži.

9. Nakon stavka 1. točke (c) dodaje se nova točka (d) kako slijedi:

(d) Svaka bi stranka trebala isto tako, prema mogućnostima, dostavljati inventare i projekcije u pogledu emisija crnog ugljika slijedeći smjernice koje je donijelo Izvršno tijelo.

10. Uvodna fraza iz stavka 3. zamjenjuje se sljedećim:

Na zahtjev i u skladu s rokovima koje je utvrdilo Izvršno tijelo, EMEP i ostala pomoćna tijela dostavljaju Izvršnom tijelu sljedeće odgovarajuće informacije:

11. U stavku 3. točki (a) riječi „čestica, uključujući crni ugljik" umeću se iza riječi „koncentracije".

12. U stavku 3. točki (b) riječi „ozona i njegovih prethodnika." zamjenjuju se riječima „čestica, prizemnog ozona i njihovih prethodnika.".

13. Nakon stavka 3. točke (b) umeću se nove točke (c) i (d) kako slijedi:

(c) štetni učinci na ljudsko zdravlje, prirodne ekosustave, materijale i kulture, uključujući međudjelovanja s klimatskim promjenama i okolišem povezana s tvarima obuhvaćenima ovim Protokolom te napredak u ostvarenju poboljšanja u pogledu ljudskog zdravlja i okoliša prema opisu iz smjernice koju je donijelo Izvršno tijelo; te

(d) izračun proračuna u pogledu dušika, učinkovitost korištenja dušika te viškovi dušika i njihova poboljšanja unutar zemljopisnog obuhvata EMEP-a slijedeći smjernice koje je donijelo Izvršno tijelo.

14. Zadnja rečenica stavka 3. briše se.

15. U stavku 4. riječ „čestica" dodaje se na kraju stavka.

16. U stavku 5. riječi „stvarnih koncentracija ozona i kritičnih razina ozona" zamjenjuju se riječima „stvarnih koncentracija ozona i čestica i kritičnih razina ozona i čestica".

17. Novi stavak 6. dodaje se kako slijedi:

6. Neovisno o članku 7. stavku 1. točki (b), stranka može od Izvršnog tijela zatražiti dozvolu za dostavu ograničenog inventara za određenu onečišćujuću tvar ili onečišćujuće tvari ako:

(a) stranka nije na temelju ovog Protokola ili bilo kojeg drugog protokola za navedenu onečišćujuću tvar imala obvezu izvješćivanja; te

(b) su ograničenim inventarom stranke obuhvaćeni najmanje veliki izvori onečišćujuće tvari ili onečišćujućih tvari unutar stranke ili odgovarajućeg PEMA-a.

Izvršno tijelo odobrava takav zahtjev jednom godišnje na najviše pet godina od stupanja na snagu ovog Protokola za stranku, ali ni u kojem slučaju za izvješćivanje o emisijama za bilo koju godinu nakon 2019. Uz takav će se zahtjev nalaziti informacije o napretku prema razvoju cjelovitijeg inventara kao dijela godišnjeg izvješćivanja stranke.

J. Članak 8.

1. U stavku (b) riječi „česticama, uključujući crni ugljik" umeću se iza riječi „onih o".

2. U stavku (c) riječi „dušikovih spojeva i hlapivih organskih spojeva" zamjenjuju se riječima „dušikovih spojeva, hlapivih organskih spojeva i čestica, uključujući crni ugljik".

3. Nakon stavka (d) dodaje se novi stavak (d.a) kako slijedi:

(d.a) usavršavanjem znanstvenog razumijevanja mogućih usporednih koristi za ublaživanje klimatskih promjena povezanih s mogućim scenarijima smanjenja tvari koje onečišćuju zrak (poput metana, ugljikovog monoksida i crnog ugljika) koje uzrokuju kratkoročno zračenje i imaju druge učinke na klimu.

4. U stavku (e) riječi „eutrofikacije i fotokemijskog onečišćenja" zamjenjuju se riječima „eutrofikacije, fotokemijskog onečišćenja i čestica".

5. U stavku (f) riječi „amonijaka i hlapivih organskih spojeva" zamjenjuju se riječima „amonijaka, hlapivih organskih spojeva i ostalih prethodnika ozona i čestica".

6. U stavku (g):

(a) riječi „dušika i hlapivih organskih spojeva" zamjenjuju se riječima „dušika, hlapivih organskih spojeva i čestica";

(b) riječi „uključujući njihov doprinos koncentracijama čestica," brišu se; te

(c) riječi „hlapivih organskih spojeva i troposferskog ozona" zamjenjuju se riječima „hlapivih organskih spojeva, čestica i prizemnog ozona".

7. U stavku (k):

(a) riječi „okoliš i ljudsko zdravlje" zamjenjuju se riječima „okoliš, ljudsko zdravlje i učinke na klimu"; te

(b) riječi „amonijaka i hlapivih organskih spojeva" zamjenjuju se riječima „amonijaka, hlapivih organskih spojeva i čestica".

K. Članak 10.

1. U stavku 1. riječi „sumpora i dušikovih spojeva" zamjenjuju se riječima „sumpora, dušikovih spojeva i čestica".

2. U stavku 2. točki (b):

(a) riječi „zdravstvenih učinaka" zamjenjuju se riječima „učinaka na ljudsko zdravlje i usporednih koristi u pogledu klime"; i

(b) riječ „čestice" umeće se iza riječi „s osobitim osvrtom na".

3. Novi stavci 3. i 4. dodaju se kako slijedi:

3. Izvršno tijelo u svoje revizije na temelju ovog članka uključuje procjenu mjera za ublaživanje emisija crnog ugljika najkasnije na svom drugom zasjedanju nakon stupanja na snagu izmjene navedene u Odluci 2012/2.

4. Stranke najkasnije na drugom zasjedanju Izvršnog tijela nakon stupanja na snagu izmjene navedene u Odluci 2012/2 ocjenjuju mjere kontrole amonijaka te razmatraju potrebu za revizijom Dodatka IX.

L. Članak 13.

Članak 13. zamjenjuje se kako slijedi:

Članak 13.
Prilagodbe

1. Svaka stranka Konvencije može predložiti prilagodbu Dodatka II. Protokolu dodavanjem imena, zajedno s razinama emisija, najvećim vrijednostima emisija i postotkom smanjenja emisija.

2. Svaka stranka može predložiti prilagodbu svojih obveza smanjenja emisija koje su već navedene u Dodatku II. Uz takav prijedlog treba dostaviti popratnu dokumentaciju, a on se razmatra kako je utvrđeno odlukom Izvršnog tijela. To se razmatranje odvija prije nego što stranke raspravljaju o prijedlogu u skladu sa stavkom 4.

3. Svaka stranka koja je prihvatljiva na temelju članka 3. stavka 9. može predložiti prilagodbu Dodatka III. radi dodavanja jednog PEMA-a ili više njih ili izmjene PEMA-a u svojoj nadležnosti koji je naveden u tom dodatku. 27.9.2017. L 248/12 Službeni list Europske unije HR

4. Predložene prilagodbe u pisanom obliku podnose se izvršnom tajniku Komisije, koji ih priopćava svim strankama. Stranke raspravljaju o predloženim prilagodbama na sljedećem zasjedanju Izvršnog tijela, pod uvjetom da je izvršni tajnik navedene prijedloge dostavio strankama najmanje devedeset dana unaprijed.

5. Prilagodbe se donose konsenzusom stranaka prisutnih na zasjedanju Izvršnoga tijela i stupaju na snagu za sve stranke ovoga Protokola devedesetoga dana nakon što izvršni tajnik Komisije obavijesti te stranke o donošenju prilagodbe u pisanom obliku.

Članak 13.a
Izmjene

1. Svaka stranka može predložiti izmjene ovog Protokola.

2. Predložene izmjene u pisanom obliku podnose se izvršnom tajniku Komisije, koji ih priopćava svim strankama. Stranke raspravljaju o predloženim izmjenama na sljedećem zasjedanju Izvršnog tijela, pod uvjetom da je izvršni tajnik navedene prijedloge dostavio strankama najmanje devedeset dana unaprijed.

3. Izmjene ovog Protokola, osim izmjena dodataka I. i III., donose se konsenzusom stranaka prisutnih na zasjedanju Izvršnog tijela te stupaju na snagu za stranke koje su ih prihvatile devedesetog dana od datuma kad su dvije trećine stranaka u trenutku njihova donošenja položile kod depozitara svoje isprave o njihovu prihvatu. Za sve druge stranke izmjene stupaju na snagu devedesetoga dana od datuma kad je stranka položila kod depozitara svoju ispravu o njihovu prihvatu.

4. Izmjene dodataka I. i III. ovom Protokolu donose se konsenzusom stranaka prisutnih na zasjedanju Izvršnog tijela. Po isteku sto osamdeset dana od datuma kada ih izvršni tajnik Komisije priopći strankama, sve izmjene takvih dodataka stupaju na snagu za one stranke koje nisu depozitaru podnijele obavijesti sukladno odredbama stavka 5., pod uvjetom da najmanje šesnaest stranaka nije podnijelo takvu obavijest.

5. Svaka stranka koja nije u mogućnosti odobriti izmjenu dodataka I. i/ili III. o tome pisanim putem obavješćuje depozitara u roku od devedeset dana od datuma priopćavanja njezinog donošenja. Depozitar bez odgađanja obavješćuje sve stranke o svim takvim zaprimljenim obavijestima. Svaka stranka može u svakom trenutku zamijeniti prethodnu obavijest prihvatom te, nakon polaganja isprave o prihvatu kod depozitara, izmjene tog dodatka stupaju na snagu za tu stranku.

6. Za one stranke koje su ih prihvatile, postupak utvrđen stavkom 3. zamjenjuje se postupkom utvrđenim stavkom 7. u pogledu izmjena dodataka od IV. do XI.

7. Izmjene dodataka od IV. do XI. donose se konsenzusom stranaka prisutnih na zasjedanju Izvršnog tijela. Po isteku jedne godine od datuma kad ju je izvršni tajnik Komisije priopćio svim strankama izmjena svih navedenih dodataka stupa na snagu za one stranke koje depozitaru nisu dostavile obavijest u skladu s odredbama podstavka (a):

(a) svaka stranka koja nije u mogućnosti odobriti izmjenu dodataka od IV. do XI. o tome pisanim putem obavješćuje depozitara u roku od godine dana od datuma priopćavanja njezinog donošenja. Depozitar bez odgađanja obavješćuje sve stranke o svim takvim zaprimljenim obavijestima. Svaka stranka može u svakom trenutku zamijeniti prethodnu obavijest prihvatom te, nakon polaganja isprave o prihvatu kod depozitara, izmjene tog dodatka stupaju na snagu za tu stranku;

(b) izmjene dodataka od IV. do XI. ne stupaju na snagu ako ukupno šesnaest ili više stranaka:

(i) nije dostavilo obavijest u skladu s odredbama podstavka (a); ili

(ii) nije prihvatilo postupak utvrđen ovim stavkom i još nije kod depozitara položilo ispravu o prihvatu u skladu s odredbama stavka 3.

M. Članak 15.

Novi stavak 4. dodaje se kako slijedi:

4. Državna ili regionalna organizacija za gospodarsku integraciju u svojoj ispravi o ratifikaciji, prihvatu, odobrenju ili pristupu navodi ako ne namjerava preuzeti obvezu u pogledu postupaka utvrđenih člankom 13.a stavkom 7. u pogledu izmjene dodataka od IV. do XI.".

N. Novi članak 18.a

Novi članak 18.a dodaje se iza članka 18. kako slijedi:

Članak 18.a
Raskid protokola

Kad sve stranke bilo kojeg od sljedećih protokola polože svoje isprave o ratifikaciji, prihvatu, odobrenju ili pristupu u pogledu ovog Protokola kod depozitara u skladu s člankom 15., taj se Protokol smatra raskinutim:

(a) Protokol iz Helsinkija o smanjenju emisija sumpora ili njihova prekograničnog strujanja za najmanje 30 % iz 1985.;

(b) Protokol iz Sofije o kontroli emisija dušikovih oksida ili njihova prekograničnog strujanja iz 1988.;

(c) Protokol iz Ženeve o kontroli emisija hlapivih organskih spojeva ili njihova prekograničnog strujanja iz 1991.;

(d) Protokol iz Osla o daljnjem smanjenju emisija sumpora iz 1994.

O. Dodatak II.

Tekst u Dodatku II. zamjenjuje se sljedećim:

Obveze smanjenja emisija

1. Obveze smanjenja emisija navedene u sljedećim tablicama odnose se na odredbe članka 3. stavaka 1. i 10. ovog Protokola.

2. Tablicom 1. obuhvaćene su gornje granice emisije za sumporov dioksid (SO_2), dušikove okside (NO_x), amonijak (NH_3) i hlapive organske spojeve (HOS-ovi) za 2010. do 2020. izraženo u tisućama metričkih tona (tone) za one stranke koje su ratificirale ovaj Protokol prije 2010.

3. Tablicama od 2. do 6. obuhvaćene su obveze smanjenja emisija za SO_2, NO_x, NH_3, HOS-ove i $PM_{2,5}$ za 2020. i poslije. Te su obveze izražene kao postotak smanjenja razine emisije iz 2005.

4. Procjene emisije za 2005. navedene u tablicama od 2. do 6. izražene su u tisućama tona te predstavljaju posljednje najdostupnije podatke koje su stranke prijavile u 2012. Te su procjene navedene samo kao informacija, a stranke ih mogu ažurirati tijekom prijave podataka o emisiji na temelju ovog Protokola ako bolje informacije postanu dostupne. Tajništvo će za potrebe informiranja održavati i redovno ažurirati tablicu najsvježijih procjena koje stranke prijavljuju na mrežnoj stranici Konvencije. Postotak obveza smanjenja emisija navedenih u tablicama od 2. do 6. primjenjiv je na najsvježije procjene za 2005. koje su stranke prijavile izvršnom tajniku Komisije.

5. Ako tijekom određene godine ustanovi da, s obzirom na posebno hladnu zimu, posebno suho ljeto ili nepredviđena odstupanja u gospodarskim aktivnostima poput gubitka kapaciteta opskrbe električnom energijom na domaćem tržištu ili u susjednoj zemlji, ne može ispuniti obveze smanjenja emisija, stranka ih može ispuniti tako da odredi prosjek godišnjih emisija za dotičnu godinu, godinu koja joj prethodi i godinu koja slijedi, uz uvjet da taj prosjek ne premašuje njezinu obvezu.

Tablica 1.

Gornja granica za 2010. do 2020. za stranke koje su ratificirale ovaj Protokol prije 2010. (izraženo u tisućama tona godišnje)

	Stranka	*Ratifikacija*	*SO_2*	*NO_x*	*NH_3*	*HOS-ovi*
1.	Belgija	2007.	106	181	74	144
2.	Bugarska	2005.	856	266	108	185
3.	Hrvatska	2008.	70	87	30	90
4.	Cipar	2007.	39	23	9	14
5.	Češka Republika	2004	283	286	101	220
6.	Danska	2002.	55	127	69	85
7.	Finska	2003.	116	170	31	130
8.	Francuska	2007.	400	860	780	1 100
9.	Njemačka	2004.	550	1 081	550	995
10.	Mađarska	2006.	550	198	90	137
11.	Latvija	2004.	107	84	44	136
12.	Litva	2004.	145	110	84	92
13.	Luksemburg	2001.	4	11	7	9
14.	Nizozemska	2004.	50	266	128	191
15.	Norveška	2002.	22	156	23	195
16.	Portugal	2005.	170	260	108	202
17.	Rumunjska	2003.	918	437	210	523

18.	Slovačka	2005.	110	130	39	140
19.	Slovenija	2004.	27	45	20	40
20.	Španjolska [a]	2005.	774	847	353	669
21.	Švedska	2002.	67	148	57	241
22.	Švicarska	2005.	26	79	63	144
23.	Ujedinjeno Kraljevstvo Velike Britanije i Sjeverne Irske	2005.	625	1 181	297	1 200
24.	Sjedinjene Američke Države	2004.	[b]	[c]		[d]
25.	Europska unija	2003.	7 832	8 180	4 294	7 585

[a] Brojke se odnose na europski dio zemlje.

[b] Nakon prihvata ovog Protokola 2004. Sjedinjene Američke Države dostavile su okvirni cilj za 2010. od 16 013 000 tona za ukupne emisije sumpora iz PEMA-a za sumpor, 48 susjednih saveznih država i Kolumbijski distrikt. Ta se brojka pretvara u 14 527 000 tona.

[c] Nakon prihvata ovog Protokola 2004. Sjedinjene Američke Države dostavile su okvirni cilj za 2010. od 6 897 000 tona za ukupne emisije dušikovih oksida (NO_x) iz PEMA-a za dušikove okside, savezne države Connecticut, Delaware, Kolumbijski distrikt, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, i Wisconsin. Ta se brojka pretvara u 6 257 000 tona.

[d] Nakon prihvata ovog Protokola 2004. Sjedinjene Američke Države dostavile su okvirni cilj za 2010. od 4 972 000 tona za ukupne emisije hlapivih organskih spojeva (HOS-ovi) iz PEMA-a za hlapive organske spojeve, savezne države Connecticut, Delaware, Kolumbijski distrikt, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, i Wisconsin. Ta se brojka pretvara u 4 511 000 tona.

Tablica 2.

Obveze smanjenja emisije sumporovog dioksida za 2020. i poslije

	Stranka Konvencije	*Razine emisije za 2005. u tisućama tona SO_2*	*Smanjenje u odnosu na razinu za 2005. (%)*
1.	Austrija	27	26
2.	Bjelorusija	79	20
3.	Belgija	145	43
4.	Bugarska	777	78
5.	Kanada [a]		
6.	Hrvatska	63	55
7.	Cipar	38	83
8.	Češka Republika	219	45
9.	Danska	23	35

10.	Estonija	76	32
11.	Finska	69	30
12.	Francuska	467	55
13.	Njemačka	517	21
14.	Grčka	542	74
15.	Mađarska	129	46
16.	Irska	71	65
17.	Italija	403	35
18.	Latvija	6,7	8
19.	Litva	44	55
20.	Luksemburg	2,5	34
21.	Malta	11	77
22.	Nizozemska [b]	65	28
23.	Norveška	24	10
24.	Poljska	1 224	59
25.	Portugal	177	63
26.	Rumunjska	643	77
27.	Slovačka	89	57
28.	Slovenija	40	63
29.	Španjolska [b]	1 282	67
30.	Švedska	36	22
31.	Švicarska	17	21
32.	Ujedinjeno Kraljevstvo Velike Britanije i Sjeverne Irske	706	59
33.	Sjedinjene Američke Države [c]		
34.	Europska unija	7 828	59

[a] Nakon ratifikacije, prihvata, odobrenja ovog Protokola ili pristupa ovom Protokolu Kanada dostavlja: (a) vrijednost ukupnih procijenjenih razina emisije sumpora za 2005., nacionalnih ili za svoj PEMA, ako ga je dostavila; te (b) okvirnu vrijednost smanjenja ukupnih razina emisije sumpora za 2020. u usporedbi s razinama za 2005. na nacionalnoj razini ili za svoj PEMA. Točka (a) navest će se u tablici, a točka (b) navest će se u napomeni uz tablicu. PEMA, ako je dostavljen, ponudit će se kao prilagodba Dodatka III. Protokolu

[b] Brojke se odnose na europski dio zemlje.

[c] Nakon ratifikacije, prihvata ili odobrenja izmjene ili pristupa izmjeni kojom se ova tablica dodaje ovom Protokolu, Sjedinjene Američke Države dostavljaju: (a) vrijednost ukupnih procijenjenih razina emisije sumpora za 2005., nacionalnih ili za PEMA; (b) okvirnu vrijednost smanjenja ukupnih razina emisije sumpora za 2020. u usporedbi s razinama za 2005.; te (c) sve

izmjene PEMA-a utvrđenog kad su Sjedinjene Države postale stranka Protokola. Točka (a) navest će se u tablici, točka (b) navest će se u napomeni uz tablicu, a točka (c) ponudit će se kao prilagodba Dodatka III.

Tablica 3.

Obveze smanjenja emisije dušikovih oksida za 2020. i poslije [a]

	Stranka Konvencije	*Razine emisije za 2005. u tisućama tona NO_2*	*Smanjenje u odnosu na razinu za 2005. (%)*
1.	Austrija	231	37
2.	Bjelorusija	171	25
3.	Belgija	291	41
4.	Bugarska	154	41
5.	Kanada [b]		
6.	Hrvatska	81	31
7.	Cipar	21	44
8.	Češka Republika	286	35
9.	Danska	181	56
10.	Estonija	36	18
11.	Finska	177	35
12.	Francuska	1 430	50
13.	Njemačka	1 464	39
14.	Grčka	419	31
15.	Mađarska	203	34
16.	Irska	127	49
17.	Italija	1 212	40
18.	Latvija	37	32
19.	Litva	58	48
20.	Luksemburg	19	43
21.	Malta	9,3	42
22.	Nizozemska [c]	370	45
23.	Norveška	200	23
24.	Poljska	866	30
25.	Portugal	256	36
26.	Rumunjska	309	45

27.	Slovačka	102	36
28.	Slovenija	47	39
29.	Španjolska [c]	1 292	41
30.	Švedska	174	36
31.	Švicarska [d]	94	41
32.	Ujedinjeno Kraljevstvo Velike Britanije i Sjeverne Irske	1 580	55
33.	Sjedinjene Američke Države [e]		
34.	Europska unija	11 354	42

a Emisije iz tla nisu obuhvaćene procjenama za 2005. za države članice EU-

b Nakon ratifikacije, prihvata, odobrenja ovog Protokola ili pristupa ovom Protokolu Kanada dostavlja: (a) vrijednost ukupnih procijenjenih razina emisije dušikova oksida za 2005., nacionalnih ili za svoj PEMA, ako ga je dostavila; te (b) okvirnu vrijednost smanjenja ukupnih razina emisije dušikova oksida za 2020. u usporedbi s razinama za 2005. na nacionalnoj razini ili za svoj PEMA. Točka (a) navest će se u tablici, a točka (b) navest će se u bilješci uz tablicu. PEMA, ako je dostavljen, ponudit će se kao prilagodba Dodatka III. Protokola.

c Brojke se odnose na europski dio zemlje.

d Uključujući emisije iz proizvodnje usjeva i poljoprivrednih tla (NFR 4D).

e Nakon ratifikacije, prihvata ili odobrenja izmjene ili pristupa izmjeni kojom se ova tablica dodaje ovom Protokolu, Sjedinjene Američke Države dostavljaju: (a) vrijednost ukupnih procijenjenih razina emisije dušikovih oksida za 2005., nacionalnih ili za PEMA; (b) okvirnu vrijednost smanjenja ukupnih razina emisije dušikovih oksida za 2020. u usporedbi s razinama za 2005.; te (c) sve izmjene PEMA-a utvrđenog kad su Sjedinjene Države postale stranka Protokola. Točka (a) navest će se u tablici, točka (b) navest će se u napomeni uz tablicu, a točka (c) ponudit će se kao prilagodba Dodatka III.

Tablica 4.

Obveze smanjenja emisije amonijaka za 2020. i poslije

	Stranka Konvencije	*Razine emisije za 2005. u tisućama tona NH_3*	*Smanjenje u odnosu na razinu za 2005. (%)*
1.	Austrija	63	1
2.	Bjelorusija	136	7
3.	Belgija	71	2
4.	Bugarska	60	3
5.	Hrvatska	40	1
6.	Cipar	5,8	10
7.	Češka Republika	82	7

8.	Danska	83	24
9.	Estonija	9,8	1
10.	Finska	39	20
11.	Francuska	661	4
12.	Njemačka	573	5
13.	Grčka	68	7
14.	Mađarska	80	10
15.	Irska	109	1
16.	Italija	416	5
17.	Latvija	16	1
18.	Litva	39	10
19.	Luksemburg	5,0	1
20.	Malta	1,6	4
21.	Nizozemska [a]	141	13
22.	Norveška	23	8
23.	Poljska	270	1
24.	Portugal	50	7
25.	Rumunjska	199	13
26.	Slovačka	29	15
27.	Slovenija	18	1
28.	Španjolska [a]	365	3
29.	Švedska	55	15
30.	Švicarska	64	8
31.	Ujedinjeno Kraljevstvo Velike Britanije i Sjeverne Irske	307	8
32.	Europska unija	3 813	6

[a] Brojke se odnose na europski dio zemlje

Tablica 5.

Obveze smanjenja emisije hlapivih organskih spojeva za 2020. i poslije

Stranka Konvencije	*Razine emisije za 2005. u tisućama tona HOS-ova*	*Smanjenje u odnosu na razinu za 2005. (%)*
1. Austrija	162	21

2. Bjelorusija	349	15
3. Belgija	143	21
4. Bugarska	158	21
5. Kanada [a]		
6. Hrvatska	101	34
7. Cipar	14	45
8. Češka Republika	182	18
9. Danska	110	35
10.Estonija	41	10
11.Finska	131	35
12.Francuska	1 232	43
13.Njemačka	1 143	13
14.Grčka	222	54
15.Mađarska	177	30
16.Irska	57	25
17.Italija	1 286	35
18.Latvija	73	27
19.Litva	84	32
20.Luksemburg	9,8	29
21.Malta	3,3	23
22.Nizozemska [b]	182	8
23.Norveška	218	40
24.Poljska	593	25
25.Portugal	207	18
26.Rumunjska	425	25
27.Slovačka	73	18
28.Slovenija	37	23
29.Španjolska [b]	809	22
30.Švedska	197	25
31.Švicarska [c]	103	30
32.Ujedinjeno Kraljevstvo Velike Britanije i Sjeverne Irske	1 088	32
33.Sjedinjene Američke Države [d]		
34.Europska unija	8 842	28

[a] Nakon ratifikacije, prihvata, odobrenja ovog Protokola ili pristupa ovom Protokolu Kanada dostavlja: (a) vrijednost ukupnih procijenjenih razina emisije HOS-ova za 2005., nacionalnih ili za svoj PEMA, ako ga je dostavila; te (b) okvirnu vrijednost smanjenja ukupnih razina emisije HOS-ova za 2020. u usporedbi s razinama za 2005. na nacionalnoj razini ili za svoj PEMA. Točka (a) navest će se u tablici, a točka (b) navest će se u bilješci uz tablicu. PEMA, ako je dostavljen, ponudit će se kao prilagodba Dodatka III. Protokola.

[b] Brojke se odnose na europski dio zemlje.

[c] Uključujući emisije iz proizvodnje usjeva i poljoprivrednih tla (NFR 4D).

[d] Nakon ratifikacije, prihvata ili odobrenja izmjene ili pristupa izmjeni kojom se ova tablica dodaje ovom Protokolu, Sjedinjene Američke Države dostavljaju: (a) vrijednost ukupnih procijenjenih razina emisije HOS-ova za 2005., nacionalnih ili za PEMA; (b) okvirnu vrijednost smanjenja ukupnih razina emisije HOS-ova za 2020. u usporedbi s razinama za 2005.; te (c) sve izmjene PEMA-a utvrđenog kad su Sjedinjene Države postale stranka Protokola. Točka (a) navest će se u tablici, točka (b) navest će se u napomeni uz tablicu, a točka (c) ponudit će se kao prilagodba Dodatka III.

Tablica 6.

Obveze smanjenja emisije $PM_{2,5}$ za 2020. i poslije

	Stranka Konvencije	*Razine emisije za 2005. u tisućama tona $PM_{2,5}$*	*Smanjenje u odnosu na razinu za 2005. (%)*
1.	Austrija	22	20
2.	Bjelorusija	46	10
3.	Belgija	24	20
4.	Bugarska	44	20
5.	Kanada [a]		
6.	Hrvatska	13	18
7.	Cipar	2,9	46
8.	Češka Republika	22	17
9.	Danska	25	33
10.	Estonija	20	15
11.	Finska	36	30
12.	Francuska	304	27
13.	Njemačka	121	26
14.	Grčka	56	35
15.	Mađarska	31	13
16.	Irska	11	18

17.	Italija	166	10
18.	Latvija	27	16
19.	Litva	8,7	20
20.	Luksemburg	3,1	15
21.	Malta	1,3	25
22.	Nizozemska [b]	21	37
23.	Norveška	52	30
24.	Poljska	133	16
25.	Portugal	65	15
26.	Rumunjska	106	28
27.	Slovačka	37	36
28.	Slovenija	14	25
29.	Španjolska [b]	93	15
30.	Švedska	29	19
31.	Švicarska	11	26
32.	Ujedinjeno Kraljevstvo Velike Britanije i Sjeverne Irske	81	30
33.	Sjedinjene Američke Države [c]		
34.	Europska unija	1 504	22

[a] Nakon ratifikacije, prihvata, odobrenja ovog Protokola ili pristupa ovom Protokolu Kanada dostavlja: (a) vrijednost ukupnih procijenjenih razina emisije čestica za 2005, nacionalnih ili za svoj PEMA, ako ga je dostavila; te (b) okvirnu vrijednost smanjenja ukupnih razina emisije čestica za 2020. u usporedbi s razinama za 2005. na nacionalnoj razini ili za svoj PEMA. Točka (a) navest će se u tablici, a točka (b) navest će se u bilješci uz tablicu. PEMA, ako je dostavljen, ponudit će se kao prilagodba Prilogu III. Protokola.

[b] Brojke se odnose na europski dio zemlje.

[c] Nakon ratifikacije, prihvata ili odobrenja izmjene ili pristupa izmjeni kojom se ova tablica dodaje ovom Protokolu, Sjedinjene Američke Države dostavljaju: (a) vrijednost ukupnih procijenjenih razina emisije čestica 2,5 za 2005, nacionalnih ili za svoj PEMA, ako ga je dostavila; te (b) okvirnu vrijednost smanjenja ukupnih razina emisije čestica 2,5 za 2020. u usporedbi s razinama za 2005. Točka (a) navest će se u tablici, a točka (b) navest će se u bilješci uz tablicu.

P. Dodatak III.

1. U rečenici ispod naslova riječ „PEMA" zamjenjuje se riječju „PEMA-ovi su".

2. Prije unosa za PEMA Ruske Federacije dodaju se novi podnaslov i stavak kako slijedi:

PEMA Kanade

PEMA za sumpor za Kanadu područje je od 1 milijun četvornih kilometara koje uključuje cjelokupno područje pokrajina Prince Edward Island, Nova Scotia i New Brunswick, cijelo područje pokrajine Québec južno od ravne linije između Havre-St. Pierrea na sjevernoj obali zaljeva Saint Lawrence i točke gdje granica između Québeca i Ontarija presijeca obalu zaljeva James Bay, te cijelo područje pokrajine Ontario južno od ravne linije između točke gdje granica između Ontarija i Québeca siječe obalu zaljeva James Bay i rijeke Nipigon u blizini sjeverne obale jezera Lake Superior.

3. Stavak ispod podnaslova „PEMA Ruske Federacije" zamjenjuje se sljedećim:

PEMA Ruske Federacije odgovara europskom području Ruske Federacije. Europsko područje Ruske Federacije dio je područja Rusije unutar administrativnih i zemljopisnih granica dijelova Ruske Federacije smještenih u istočnoj Europi koji graniče s azijskim kontinentom u skladu s konvencionalnom granicom koja se proteže od sjevera prema jugu uz Ural, granicu s Kazakstanom do Kaspijskog mora pa uz državne granice s Azerbajdžanom i Gruzijom u sjevernom Kavkazu do Crnog mora.

Q. Dodatak IV.

1. Tekst u Dodatku IV. zamjenjuje se sljedećim:

Granične vrijednosti emisija sumpora iz stacionarnih izvora

1. Odjeljak A primjenjuje se na stranke osim Kanade i Sjedinjenih Američkih Država, odjeljak B odnosi se na Kanadu, a odjeljak C na Sjedinjene Američke Države.

A. Stranke osim Kanade i Sjedinjenih Američkih Država

2. Za potrebe ovog odjeljka ‚granična vrijednost emisija' (GVE) znači količina SO_2 (ili SO_x gdje se tako navodi) sadržana u otpadnim plinovima iz uređaja koja ne smije biti prekoračena. Ako nije drukčije navedeno, ona se izračunava kao masa SO_2 (SO_x, izraženo kao SO_2) po volumenu otpadnog plina (izraženo u mg/m^3), s pretpostavkom normalnih uvjeta temperature i tlaka za suhi plin (volumen kod temperature od 273,15 K i tlaka 101,3 kPa). Kad je riječ o udjelu kisika u otpadnom plinu, za svaku kategoriju izvora primjenjuju se vrijednosti iz tablica u nastavku. Razrjeđivanje radi snižavanja koncentracija onečišćujućih tvari u otpadnim plinovima nije dopušteno. Uključivanje, isključivanje i održavanje opreme je izuzeto.

3. Provjerava se sukladnost s GVE-ima, minimalnim stopama odsumporavanja, stopama uklanjanja sumpora i graničnim vrijednostima sadržaja sumpora:

(a) Emisije se nadziru putem mjerenja ili izračuna kojima se ostvaruje najmanje ista preciznost. Sukladnost s GVE-ima provjerava se putem stalnih i povremenih mjerenja, homologacije tipa ili bilo koje druge tehnički valjane metode, uključujući provjerene metode izračuna. Kod stalnih mjerenja, sukladnost s GVE-ima

postiže se ako potvrđeni mjesečni prosjek emisije ne premašuje graničnu vrijednost, osim ako je drukčije utvrđeno za pojedinačnu kategoriju izvora. Kod povremenih mjerenja ili drugih odgovarajućih postupaka utvrđivanja ili izračuna, sukladnost s GVE-om postiže se ako srednja vrijednost odgovarajućeg broja mjerenja u reprezentativnim uvjetima ne premašuje GVE. Nepreciznost metoda mjerenja može se uzeti u obzir kod provjere.

(b) Kod postrojenja za izgaranje kod kojih se primjenjuju minimalne stope odsumporavanja utvrđene stavkom 5. točkom (a) pod točkom ii., sadržaj sumpora u gorivu isto se tako redovno nadzire i nadležna se tijela obavješćuje o znatnim promjenama u vrsti korištenog goriva. Stope odsumporavanja primjenjuju se kao mjesečne prosječne vrijednosti.

(c) Sukladnost s minimalnom stopom uklanjanja sumpora provjerava se putem redovnih mjerenja ili bilo koje druge tehnički valjane metode.

(d) Sukladnost s graničnim vrijednostima sumpora za plinsko ulje provjerava se putem redovnih ciljanih mjerenja.

4. Nadzor odgovarajućih onečišćujućih tvari i mjerenja parametara postupka, kao i osiguranje kvalitete automatskih mjernih sustava i referentnih mjerenja za umjeravanje tih sustava provode se u skladu s normama Europskog odbora za normizaciju (CEN). Ako norme CEN-a nisu dostupne, primjenjuju se norme Međunarodne organizacije za normizaciju (ISO), nacionalne ili međunarodne norme kojima će se osigurati dostava podataka jednake znanstvene kvalitete.

5. Sljedećim se podstavcima utvrđuju posebne odredbe za postrojenja za izgaranje iz stavka 7.:

(a) Stranka se može izuzeti od obveze postupanja u skladu s graničnim vrijednostima emisije predviđenima stavkom 7. u sljedećim slučajevima:

(i) kod postrojenja za izgaranje na gorivo s niskim udjelom sumpora kad operator ne može postupati u skladu s navedenim graničnim vrijednostima zbog prekida opskrbe gorivom s niskim udjelom sumpora ili ozbiljne nestašice;

(ii) kod postrojenja za izgaranje na vlastito kruto gorivo, koje ne može biti u skladu s graničnim vrijednostima emisije predviđenima stavkom 7., trebaju se primjenjivati barem sljedeće granične vrijednosti za stope odsumporavanja:

(aa) postojeća postrojenja: 50–100 MWth: 80 %;

(bb) postojeća postrojenja: 100–300 MWth: 90 %;

(cc) postojeća postrojenja: > 300 MWth: 95 %;

(dd) nova postrojenja: 50–300 MWth: 93 %;

(ee) nova postrojenja: > 300 MWth: 97 %;

(iii) postrojenja za izgaranje na plinsko gorivo kod kojih se iznimno moraju koristiti druga goriva zbog iznenadnog prekida opskrbe plinom trebala bi biti opremljena uređajem za pročišćavanje otpadnog plina;

(iv) kod postojećih postrojenja koja nisu u pogonu više od 17 500 radnih sati, počevši od 1. siječnja 2016. do najkasnije 31. prosinca 2023.;

(v) kod postojećih postrojenja za izgaranje na kruta ili tekuća goriva koja nisu u pogonu više od 1 500 radnih sati godišnje, kao prosjek u petogodišnjem razdoblju primjenjuju se sljedeći GVE-ovi:

(aa) za kruta goriva: 800 mg/m^3;

(bb) za tekuća goriva: 850 mg/m^3 za postrojenja toplinske snage od najviše 300 MWth i 400 mg/m^3 za postrojenja toplinske snage preko 300 MWth.

(b) Kad je postrojenje za izgaranje prošireno za najmanje 50 MWth, na prošireni dio koji je promijenjen primjenjuje se GVE za nove instalacije utvrđen stavkom 7. GVE se računa kao prosjek ponderiran stvarnom toplinskom snagom za postojeći i novi dio postrojenja.

(c) Stranke osiguravaju donošenje odredbi za postupke povezane s neispravnošću ili kvarom opreme za smanjivanje emisije.

(d) U slučaju postrojenja za izgaranje na više goriva kad se istovremeno koriste dva ili više goriva, GVE se utvrđuje kao ponderirani prosjek GVE-ova za pojedinačna goriva na temelju toplinske snage svakog goriva.

6. Stranke mogu primjenjivati pravila prema kojima postrojenja za izgaranje i postrojenja za preradu mogu biti izuzeta od sukladnosti s pojedinačnim graničnim vrijednostima SO_2 utvrđenima ovim Dodatkom, uz uvjet da su sukladni s krovnom graničnom vrijednosti SO_2 utvrđenom najboljim dostupnim tehnikama.

7. Postrojenja za izgaranje toplinske snage preko 50 MWth:[1]

Tablica 1.

Granične vrijednosti za emisije SO_2 iz postrojenja za izgaranje [a]

Vrsta goriva	*Toplinska snaga (MWth)*	*GVE za SO_2 mg/m^3* [b]
Kruta goriva	50–100	Nova postrojenja:
		400 (ugljen, lignit i ostala kruta goriva)

[1] Toplinska snaga postrojenja za izgaranje računa se kao zbroj snage svih jedinica povezanih sa zajedničkim dimnjakom. Pojedinačne jedinice ispod 15 MWth ne uzimaju se u obzir pri izračunu ukupne toplinske snage.

		300 (treset)
		200 (biomasa)
		Postojeća postrojenja:
		400 (ugljen, lignit i ostala kruta goriva)
		300 (treset)
		200 (biomasa)
	100–300	Nova postrojenja:
		200 (ugljen, lignit i ostala kruta goriva)
		300 (treset)
		200 (biomasa)
		Postojeća postrojenja:
		250 (ugljen, lignit i ostala kruta goriva)
		300 (treset)
		200 (biomasa)
	> 300	Nova postrojenja:
		150 (ugljen, lignit i ostala kruta goriva) (FBC: 200)
		150 (treset) (FBC: 200)
		150 (biomasa)
		Postojeća postrojenja:
		200 (ugljen, lignit i ostala kruta goriva)
		200 (treset)
		200 (biomasa)
Tekuća goriva	50–100	Nova postrojenja: 350
		Postojeća postrojenja: 350
	100–300	Nova postrojenja: 200
		Postojeća postrojenja: 250
	> 300	Nova postrojenja: 150
		Postojeća postrojenja: 200
Plinovita goriva općenito	> 50	Nova postrojenja: 35
		Postojeća postrojenja: 35
Ukapljeni plin	> 50	Nova postrojenja: 5
		Postojeća postrojenja: 5
Plin iz koksnih peći ili plin iz	> 50	Nova postrojenja:

visokih peći		200 za plin iz visokih peći 400 za plin iz koksnih peći Postojeća postrojenja: 200 za plin iz visokih peći 400 za plin iz koksnih peći
Isplinjavanje rafinerijskih ostataka	> 50	Nova postrojenja: 35 Postojeća postrojenja: 800

Napomena: FBC (fluidized bed combustion) = izgaranje u fluidiziranom sloju (cirkulirajući, pod pritiskom, ključajući).

[a] Preciznije, GVE-ovi se ne primjenjuju na:

- postrojenja u kojima se proizvodi izgaranja koriste za izravno zagrijavanje, sušenje ili neki drugi oblik obrade predmeta ili materijala,
- postrojenja za naknadno izgaranje namijenjena pročišćavanju otpadnih plinova izgaranjem, koja ne funkcioniraju kao zasebna postrojenja za izgaranje,
- postrojenja za regeneraciju katalizatora za katalitičko razdavanje,
- postrojenja za pretvaranje sumporovodika u sumpor,
- reaktore koji se koriste u kemijskoj industriji,
- peći koksne baterije,
- regeneratore za visoke peći (‚cowpers'),
- kotlove za odvajanje s uređajima za proizvodnju pulpe,
- spalionice otpada, te
- postrojenja s pogonom na dizelske, benzinske ili plinske motore ili turbine za izgaranje, bez obzira na gorivo koje koriste.

[b] Referentni udjel O_2 je 6 % za kruta goriva i 3 % za tekuća i plinovita goriva.

8. Plinsko ulje:

Tablica 2.

Granične vrijednosti sadržaja sumpora u plinskom ulju [a]

	Sadržaj sumpora (maseni postotak)
Plinsko ulje	< 0,10

[a] ‚Plinsko ulje' znači svako tekuće gorivo dobiveno iz nafte, osim brodskog goriva, obuhvaćeno oznakom KN 2710 19 25, 2710 19 29, 2710 19 45 ili 2710 19 49, ili svako tekuće gorivo dobiveno od nafte, osim brodskog goriva, čijih se manje od 65 %volumena (uključujući gubitke) destilira na 250 °C i čijih se najmanje 85 % volumena (uključujući gubitke) destilira na 350 °C po metodi ASTM D86. Dizelska goriva, odnosno plinska ulja obuhvaćena oznakom KN 2710 19 41 koja se koriste za vozila na vlastiti pogon, nisu obuhvaćena ovom definicijom. Goriva koja se koriste u strojevima koji ne prometuju cestama i poljoprivrednim traktorima isto tako nisu obuhvaćena ovom definicijom.

9. Rafinerije mineralnog ulja i plina:

Jedinice za uklanjanje sumpora: za postrojenja koja proizvode više od 50 Mg sumpora dnevno:

Tablica 3.

Granična vrijednost izražena kao minimalna stopa uklanjanja sumpora jedinica za uklanjanje sumpora

Tip postrojenja	*Minimalna stopa uklanjanja sumpora* [a] *(%)*
Novo postrojenje	99,5
Postojeće postrojenje	98,5

[a] Stopa uklanjanja sumpora postotak je ulaznog H2S pretvorenog u elementarni sumpor na godišnjoj osnovi.

10. Proizvodnja titanijevog dioksida:

Tablica 4.

Granične vrijednosti za emisije SOx iz proizvodnje titanijevog dioksida (godišnji prosjek)

Tip postrojenja	*GVE za SO_x (izraženo kao SO_2) (kg/t TiO_2)*
Postupak sulfata, ukupna emisija	6
Postupak klorida, ukupna emisija	1,7

B. Kanada

11. Granične vrijednosti za nadzor emisija sumporovih oksida odredit će se za stacionarne izvore, prema potrebi, uzimajući u obzir informacije o dostupnim tehnologijama nadzora, granične vrijednosti koje se primjenjuju u ostalim nadležnostima i dokumente u nastavku:

(a) naredba kojom se otrovne tvari dodaju u Dodatak 1. kanadskom Zakonu o okolišu iz 1999. SOR/2011-34;

(b) predložena uredba, naredba kojim se otrovne tvari dodaju u Dodatak 1. kanadskom Zakonu o zaštiti okoliša iz 1999.;

(c) Smjernice za emisije iz novih izvora kod proizvodnje toplinske energije;

(d) Nacionalne smjernice za stacionarne turbine za izgaranje. PN1072; i

(e) Smjernice za rad i emisiju za spalionice komunalnog krutog otpada. PN1085.

C. Sjedinjene Američke Države

12. Granične vrijednosti za nadzor emisija sumporovog dioksida iz stacionarnih izvora u sljedećim kategorijama stacionarnih izvora i izvori na koje se one primjenjuju, navode se u sljedećim dokumentima:

(a) jedinice za proizvodnju pare za električna postrojenja – 40. Zbornik saveznih propisa (40 Code of Federal Regulations – C.F.R.), odjeljak 60, pododjeljci D i Da;

(b) jedinice za proizvodnju pare za industrijske, trgovačke i institucionalne potrebe – 40 C.F.R., odjeljak 60, pododjeljci Db i Dc;

(c) postrojenja za sumpornu kiselinu – 40 C.F.R., odjeljak 60, pododjeljak H;

(d) naftne rafinerije – 40 C.F.R., odjeljak 60, pododjeljak J i pododjeljak Ja;

(e) postrojenja za topljenje bakrene rude – 40 C.F.R., odjeljak 60, pododjeljak P;

(f) postrojenja za topljenje cinkove rude – 40 C.F.R., odjeljak 60, pododjeljak Q;

(g) postrojenja za topljenje olovne rude – 40 C.F.R., odjeljak 60, pododjeljak R;

(h) stacionarne plinske turbine – 40 C.F.R., odjeljak 60, pododjeljak GG,

(i) prerada zemnog plina na kopnu – 40 C.F.R., odjeljak 60, pododjeljak LLL;

(j) komore za izgaranje komunalnog otpada – 40 C.F.R., odjeljak 60, pododjeljci Ea i Eb,

(k) spalionice bolničkog/medicinskog/infektivnog otpada – 40 C.F.R., odjeljak 60, pododjeljak Ec;

(l) stacionarne turbine za izgaranje – 40 C.F.R., odjeljak 60, pododjeljak KKKK;

(m) male spalionice komunalnog otpada – 40 C.F.R., odjeljak 60, pododjeljak AAAA;

(n) spalionice komercijalnog i industrijskog krutog otpada – 40 C.F.R., odjeljak 60, pododjeljak CCCC; te

(o) spalionice ostalog krutog otpada – 40 C.F.R., odjeljak 60, pododjeljak EEEE.

R. Dodatak V.

Tekst u Dodatku V. zamjenjuje se sljedećim:

Granične vrijednosti emisija dušikovih oksida iz stacionarnih izvora

1. Odjeljak A primjenjuje se na stranke osim Kanade i Sjedinjenih Američkih Država, odjeljak B odnosi se na Kanadu, a odjeljak C na Sjedinjene Američke Države.

A. Stranke osim Kanade i Sjedinjenih Američkih Država

2. Za potrebe ovog odjeljka ‚granična vrijednost emisije' (GVE) znači količina NOx (zbroj NO i NO2, izražen kao NO2) sadržana u otpadnim plinovima iz uređaja koja ne smije biti prekoračena. Ako nije drukčije navedeno, ona se izračunava kao masa NOx po volumenu otpadnog plina (izraženo u mg/m3), s pretpostavkom normalnih uvjeta temperature i tlaka za suhi plin (volumen kod temperature od 273,15 K i tlaka 101,3 kPa). Kad je riječ o udjelu kisika u otpadnom plinu, za svaku kategoriju izvora primjenjuju se vrijednosti iz tablica u nastavku. Razrjeđivanje radi snižavanja koncentracija onečišćujućih tvari u otpadnim plinovima nije dopušteno. Uključivanje, isključivanje i održavanje opreme je izuzeto.

3. Emisije se nadziru u svim slučajevima putem mjerenja NOx ili putem izračuna ili njihove kombinacije, čime se postiže barem ista preciznost. Sukladnost s GVE-ima provjerava se putem stalnih i povremenih mjerenja, homologacije tipa ili bilo koje druge tehnički valjane metode, uključujući provjerene metode izračuna. Kod stalnih se mjerenja sukladnost s GVE-ima postiže ako potvrđeni mjesečni prosjek emisije ne premašuje granične vrijednosti. Kod povremenih mjerenja ili drugih odgovarajućih postupaka utvrđivanja ili izračuna, sukladnost s GVE-ima postiže se ako srednja vrijednost odgovarajućeg broja mjerenja u reprezentativnim uvjetima ne premašuje GVE. Nepreciznost metoda mjerenja može se uzeti u obzir kod provjere.

4. Nadzor odgovarajućih onečišćujućih tvari i mjerenja parametara postupka, kao i osiguranje kvalitete automatskih mjernih sustava i referentnih mjerenja za umjeravanje tih sustava provode se u skladu s normama CEN-a. Ako norme CEN-a nisu dostupne, primjenjuju se norme ISO-a ili nacionalne ili međunarodne norme kojima će se osigurati dostava podataka jednake znanstvene kvalitete.

5. Posebne odredbe za postrojenja za izgaranje iz stavka 6.:

(a) Strana se može izuzeti od obveze postupanja u skladu s GVE-ima predviđenima stavkom 6. u sljedećim slučajevima:

(i) postrojenja za izgaranje na plinsko gorivo kod kojih se iznimno moraju koristiti druga goriva zbog iznenadnog prekida opskrbe plinom, trebala bi biti opremljena uređajem za pročišćavanje otpadnog plina;

(ii) kod postojećih postrojenja koja nisu u pogonu više od 17 500 radnih sati, počevši od 1. siječnja 2016. do najkasnije 31. prosinca 2023.; ili

(iii) kod postojećih postrojenja za izgaranje, osim plinskih turbina na kopnu (obuhvaćenih stavkom 7.) na kruta ili tekuća goriva koja nisu u pogonu više od 1 500 radnih sati godišnje, kao prosjek u petogodišnjem razdoblju primjenjuju se sljedeći GVE-ovi:

(aa) za kruta goriva: 450 mg/m^3;

(bb) za tekuća goriva: 450 mg/m^3.

(b) Kad je postrojenje za izgaranje prošireno za najmanje 50 MWth, na prošireni dio koji je promijenjen primjenjuje se GVE za nove instalacije utvrđen stavkom 6. GVE se računa kao prosjek ponderiran stvarnom toplinskom snagom za postojeći i novi dio postrojenja.

(c) Stranke osiguravaju donošenje odredbi za postupke povezane s neispravnošću ili kvarom opreme za smanjivanje emisije.

(d) U slučaju postrojenja za izgaranje na više goriva kad se istovremeno koriste dva ili više goriva, GVE se utvrđuje kao ponderirani prosjek GVE-ova za pojedinačna goriva na temelju toplinske snage svakog goriva. Stranke mogu primjenjivati pravila prema kojima postrojenja za izgaranje i postrojenja za preradu mogu biti izuzeta od sukladnosti s pojedinačnim graničnim vrijednostima NO_x utvrđenima ovim Dodatkom, uz uvjet da su sukladni s krovnom graničnom vrijednosti NO_x utvrđenom najboljim dostupnim tehnikama.

6. Postrojenja za izgaranje toplinske snage preko 50 MWth: [2]

Tablica 1.

Granične vrijednosti za emisije NO_x iz postrojenja za izgaranje [a]

Vrsta goriva	*Toplinska snaga (MWth)*	*GVE za NO_x (mg/m^3)* [b]
Kruta goriva	50–100	Nova postrojenja: 300 (ugljen, lignit i ostala kruta goriva) 450 (lignit u prahu) 250 (biomasa, treset) Postojeća postrojenja: 300 (ugljen, lignit i ostala kruta goriva) 450 (lignit u prahu)

[2] Toplinska snaga postrojenja za izgaranje računa se kao zbroj snage svih jedinica povezanih sa zajedničkim dimnjakom. Pojedinačne jedinice ispod 15 MWth ne uzimaju se u obzir pri izračunu ukupne snage.

		300 (biomasa, treset)
	100–300	Nova postrojenja: 200 (ugljen, lignit i ostala kruta goriva) 200 (biomasa, treset) Postojeća postrojenja: 200 (ugljen, lignit i ostala kruta goriva) 250 (biomasa, treset)
	> 300	Nova postrojenja: 150 (ugljen, lignit i ostala kruta goriva) (općenito) 150 (biomasa, treset) 200 (lignit u prahu) Postojeća postrojenja: 200 (ugljen, lignit i ostala kruta goriva) 200 (biomasa, treset)
Tekuća goriva	50–100	Nova postrojenja: 300 Postojeća postrojenja: 450
	100–300	Nova postrojenja: 150 Postojeća postrojenja: 200 (općenito) Postojeća postrojenja unutar rafinerija i kemijskih uređaja: 450 (za pokretanje destilacije i pretvaranje ostataka od rafiniranja sirove nafte za vlastitu potrošnju u postrojenjima za izgaranje i za pokretanje tekućeg ostatka od proizvodnje kao nekomercijalnog goriva)
	> 300	Nova postrojenja: 100

Vrsta goriva	*Toplinska snaga (MWth)*	*GVE za NO_x (mg/m^3) (26)*
		Postojeća postrojenja: 150 (općenito) Postojeća postrojenja unutar rafinerija i kemijskih uređaja: 450 (za pokretanje destilacije i pretvaranje ostataka od rafiniranja sirove nafte za vlastitu potrošnju u postrojenjima za izgaranje i za pokretanje tekućeg ostatka od proizvodnje kao nekomercijalnog goriva (< 500 MWth))
Zemni plin	50–300	Nova postrojenja: 100 Postojeća postrojenja: 100

	> 300	Nova postrojenja: 100 Postojeća postrojenja: 100
Ostala plinovita goriva	> 50	Nova postrojenja: 200 Postojeća postrojenja: 300

[a] Preciznije, GVE-ovi se ne primjenjuju na:

- postrojenja u kojima se proizvodi izgaranja koriste za izravno zagrijavanje, sušenje ili neki drugi oblik obrade predmeta ili materijala,
- postrojenja za naknadno izgaranje namijenjena pročišćavanju otpadnih plinova izgaranjem, koja ne funkcioniraju kao zasebna postrojenja za izgaranje,
- postrojenja za regeneraciju katalizatora za katalitičko razdavanje,
- postrojenja za pretvaranje sumporovodika u sumpor,
- reaktore koji se koriste u kemijskoj industriji,
- peći koksne baterije,
- regeneratore za visoke peći (‚cowpers'),
- kotlove za odvajanje s uređajima za proizvodnju pulpe,
- spalionice otpada, te
- postrojenja s pogonom na dizelske, benzinske i plinske motore ili turbine za izgaranje, bez obzira na gorivo koje koriste.

[b] Referentni udjel O_2 je 6 % za kruta goriva i 3 % za tekuća i plinovita goriva.

7. Kopnene turbine za izgaranje toplinske snage veće od 50 MWth: GVE-ovi NOx izraženi u mg/m3 (pri referentnom udjelu O2 od 15 %) treba primijeniti na pojedinačnu turbinu. GVE-ovi iz tablice 2. primjenjuju se samo kod opterećenja preko 70 %

Tablica 2.

Granične vrijednosti za emisije NO_x iz kopnenih turbina za izgaranje (uključujući plinske turbine kombiniranog ciklusa (CCGT))

Vrsta goriva	*Toplinska snaga (MWth)*	*GVE za NO_x (mg/m^3)* [a]
Tekuća goriva (laki i srednji destilati)	> 50	Nova postrojenja: 50 Postojeća postrojenja: 90 (općenito) 200 (postrojenja koja su u pogonu manje od 1 500 radnih sati godišnje)
Zemni plin [b]	> 50	Nova postrojenja: 50 (općenito) [d] Postojeća postrojenja: 50 (općenito) [c, d] 150 (postrojenja koja su u pogonu manje od 1500 radnih sati godišnje)
Ostali plinovi	> 50	Nova postrojenja: 50

	Postojeća postrojenja: 120 (općenito) 200 (postrojenja koja su u pogonu manje od 1 500 radnih sati godišnje)

[a] Plinske turbine za hitne slučajeve koje su u pogonu manje od 500 sati godišnje nisu obuhvaćene.

[b] Zemni je plin metan koji se nalazi u prirodi s najviše 20 % (u smislu volumena) inertnih plinova i ostalih sastojaka.

[c] 75 mg/m^3 u sljedećim slučajevima kad se učinkovitost plinske turbine utvrđuje prema uvjetima ISO-a za osnovno opterećenje:

- plinske turbine koje se koriste u kombiniranim toplinskim i električnim sustavima čija je ukupna učinkovitost veća od 75 %,
- plinske turbine koje se koriste u postrojenjima kombiniranog ciklusa čija je godišnja prosječna ukupna električna učinkovitost veća od 55 %,
- plinske turbine za mehaničke pogone.

[d] Za pojedinačne plinske turbine koje nisu obuhvaćene nijednom kategorijom iz napomene c, ali koje imaju učinkovitost veću od 35 % – utvrđenu prema uvjetima ISO-a za osnovno opterećenje – GVE za NO_x iznosi $50 \times \eta / 35$ pri čemu je η učinkovitost plinske turbine prema uvjetima ISO-a za osnovno opterećenje izražena kao postotak.

8. Proizvodnja cementa

Tablica 3.

Granične vrijednosti emisija NO_x iz proizvodnje cementnog klinkera [a]

Tip postrojenja	*GVE za NO_x (mg/m^3)*
Općenito (postojeći i novi uređaji)	500
Postojeće lepol i dugačke rotacijske peći u kojima se istovremeno ne spaljuje otpad	800

[a] Postrojenja za proizvodnju cementnog klinkera u rotacijskim pećima kapaciteta preko 500 Mg dnevno ili u drugim pećima kapaciteta preko 50 Mg dnevno Referentni udjel O_2 je 10 %.

9. Stacionarni motori:

Tablica 4.

Granične vrijednosti za emisije NO_x iz novih stacionarnih motora:

Tip motora, snaga, specifikacija goriva	*GVE [a b c] (mg/m^3)*

Motori na plin > 1 MWth	
Motori s paljenjem na iskru (= Otto motori) sva plinovita goriva	95 (poboljšano izravno izgaranje)
	190 (standardno izravno izgaranje ili obilato izgaranje s katalizatorom)
Motori na dva goriva > 1 MWth	
Na plin (sva plinovita goriva)	190
Na tekuće gorivo (sva tekuća goriva) [d]	
1–20 MWth	225
> 20 MWth	225
Dizelski motori > 5 MWth (kompresijsko paljenje)	
Spora (< 300 o/min)/Srednja (300-1 200 o/min)/brzina	
5–20 MWth	
Teško loživo ulje (TLU) i bio-ulja	
Lako loživo ulje (LLU) i zemni plin (ZP)	225
	190
Tip motora, snaga, specifikacija goriva	*GVE [a b c] (mg/m^3)*
> 20 MWth	
TLU i bio-ulja	190
LLU i ZP	190
Velika brzina (> 1 200 o/min)	190
Napomena: Referentni udjel O_2 je 15 % [1]	

[a] Ti se GVE-ovi ne primjenjuju na motore koji su u pogonu manje od 500 sati godišnje.

[b] Kad se selektivna katalitička redukcija (SCR) ne može trenutačno primijeniti zbog tehničkih i logističkih razloga, poput udaljenih otoka, ili kad se ne može jamčiti raspoloživost dovoljnih količina visokokvalitetnog goriva, za stranku se može primijeniti prijelazno razdoblje u trajanju od 10 godina od stupanja na snagu ovog Protokola za dizelske motore i motore na dva goriva tijekom kojeg se primjenjuju sljedeći GVE-ovi: — motori na dva goriva: 1 850 mg/m^3 u načinu rada na tekuće gorivo; 380 mg/m^3 u načinu rada na plin, — dizelski motori – spora (< 300 o/min) i srednja (300–1 200 o/min)/brzina: 1 300 mg/m^3 za motore između 5 i 20 MWth i 1 850

[1] Faktor konverzije iz graničnih vrijednosti u ovom Protokolu (pri udjelu kisika od 5 %) je 2,66 (16/6). Stoga granična vrijednost:

- 190/m^3 pri 15 % mg % O_2 odgovara 500 mg/m^3 pri 5 % O_2,
- 95 mg/m^3 pri 15 % O_2 odgovara 250 mg/m^3 pri 5 % O_2,
- 225 mg/m^3 pri 15 % O_2 odgovara 600 mg/m^3 pri 5 % O_2.

mg/m^3 za motore > 20 MWth, — dizelski motori – velika brzina (> 1 200 o/min): 750 mg/m^3.

[c] Motori koji su u pogonu između 500 i 1 500 radnih sati godišnje mogu se izuzeti od sukladnosti s tim GVE-ima ako se primjenjuju primarne mjere za ograničavanje emisija NO_x i ispunjavaju GVE-ovi iz napomene b.

[d] Stranka može biti izuzeta od obveze u pogledu sukladnosti s graničnim vrijednostima emisije za postrojenja za izgaranje na plinsko gorivo kod kojih se iznimno moraju koristiti druga goriva zbog iznenadnog prekida opskrbe plinom i koja bi zbog toga trebala biti opremljena uređajem za pročišćavanje otpadnog plina. Razdoblje izuzeća ne premašuje 10 dana osim kad postoji važnija potreba za održavanje opskrbe energijom.

10. Postrojenja za sinteriranje željezne rude:

Tablica 5.

Granične vrijednosti za emisije NO_x iz postrojenja za sinteriranje željezne rude

Tip postrojenja	*GVE za NO_x (mg/m^3)*
Postrojenja za sinteriranje: Novo postrojenje	400
Postrojenja za sinteriranje: Postojeće postrojenje	400

[a] Proizvodnja i prerada metala: postrojenja za pečenje ili sinteriranje metalne rude, postrojenja za proizvodnju sirovog željeza ili čelika (primarna ili sekundarna fuzija), uključujući neprekidno lijevanje s kapacitetom preko 2,5 M Mg/h, postrojenja za preradu obojenih metala (valjaonice > 20 g/h sirovog čelika).

[b] Kao odstupanje od stavka 3. ti bi se GVE-ovi trebali smatrati prosjekom tijekom znatnog vremenskog razdoblja.

11. Proizvodnja dušične kiseline:

Tablica 6.

Granične vrijednosti emisija NO_x iz proizvodnje dušične kiseline, osim jedinica za koncentriranje kiselina

Tip postrojenja	*GVE za NO_x (mg/m^3)*
Nova postrojenja	160
Postojeća postrojenja	190

B. Kanada

12. Granične vrijednosti za nadzor emisija NO_x odredit će se za stacionarne izvore, prema potrebi, uzimajući u obzir informacije o dostupnim tehnologijama nadzora, granične vrijednosti koje se primjenjuju u ostalim nadležnostima i dokumente u nastavku:

(a) Smjernice za emisije iz novih izvora kod proizvodnje toplinske energije;

(b) Nacionalne smjernice za stacionarne turbine za izgaranje. PN1072;

(c) Nacionalne smjernice za emisije iz cementnih peći. PN1284;

(d) Nacionalne smjernice za emisije iz industrijskih/komercijalnih kotlova i grijača. PN1286;

(e) Smjernice za rad i emisiju za spalionice komunalnog krutog otpada. PN1085;

(f) Plan upravljanja dušikovim oksidima (NO_x) i hlapivim organskim spojevima (HOS-ovi) – faza I. PN1066; i

(g) Smjernice za rad i emisiju za spalionice komunalnog krutog otpada. PN1085.

C. Sjedinjene Američke Države

13. Granične vrijednosti za nadzor emisija NOx iz stacionarnih izvora u sljedećim kategorijama stacionarnih izvora i izvori na koje se one primjenjuju, navode se sljedećim dokumentima:

(a) postrojenja na ugljen – 40. Zbornik saveznih propisa (40 Code of Federal Regulations – C.F.R.), odjeljak 76;

(b) jedinice za proizvodnju pare za električna postrojenja – 40 C.F.R., odjeljak 60, pododjeljci D i Da;

(c) jedinice za proizvodnju pare za industrijske, trgovačke i institucionalne potrebe – 40 C.F.R., odjeljak 60, pododjeljak Db;

(d) postrojenja za dušičnu kiselinu – 40 C.F.R., odjeljak 60, pododjeljak G;

(e) stacionarne plinske turbine – 40 C.F.R., odjeljak 60, pododjeljak GG;

(f) komore za izgaranje komunalnog otpada – 40 C.F.R., odjeljak 60, pododjeljci Ea i Eb;

(g) spalionice bolničkog/medicinskog/infektivnog otpada – 40 C.F.R., odjeljak 60, pododjeljak Ec;

(h) naftne rafinerije – 40 C.F.R., odjeljak 60, pododjeljci J i Ja;

(i) stacionarni motori s unutarnjim sagorijevanjem – paljenje na iskru, 40 C.F.R., odjeljak 60, pododjeljak JJJJ;

(j) stacionarni motori s unutarnjim sagorijevanjem – paljenje kompresijom, 40 C.F.R., odjeljak 60, pododjeljak IIII;

(k) stacionarne turbine za izgaranje – 40 C.F.R., odjeljak 60, pododjeljak KKKK;

(l) male spalionice komunalnog otpada – 40 C.F.R., odjeljak 60, pododjeljak AAAA;

(m) cement Portland – 40 C.F.R. odjeljak 60, pododjeljak F;

(n) spalionice komercijalnog i industrijskog krutog otpada – 40 C.F.R., odjeljak 60, pododjeljak CCCC; te

(o) spalionice ostalog krutog otpada – 40 C.F.R., odjeljak 60, pododjeljak EEEE."

S. Dodatak VI.

Tekst u Dodatku Vi zamjenjuje se sljedećim:

Granične vrijednosti emisija hlapivih organskih spojeva iz stacionarnih izvora

1. Odjeljak A primjenjuje se na stranke osim Kanade i Sjedinjenih Američkih Država, odjeljak B odnosi se na Kanadu, a odjeljak C na Sjedinjene Američke Države.

A. Stranke osim Kanade i Sjedinjenih Američkih Država

2. Ovim odjeljkom ovog Dodatka obuhvaćeni su stacionarni izvori emisija hlapivih organskih spojeva navedenih u stavcima od 8. do 22. u nastavku. Nisu obuhvaćena postrojenja ni dijelovi postrojenja namijenjeni istraživanju, razvoju i ispitivanje/testiranje novih proizvoda i procesa. Granične vrijednosti potrošnje navedene su u nastavku, u tablicama za pojedine sektore. One se općenito odnose na potrošnju otapala ili emisijski maseni protok. Kada jedan izvršitelj obavlja nekoliko aktivnosti pod istim potpoglavljem u istom postrojenju na istoj lokaciji, potrošnja otapala ili maseni protok emisije takvih aktivnosti zbrajaju se. Ako nije navedena donja vrijednost praga, granična se vrijednost odnosi na sva postrojenja na koja se odnosi.

3. Za potrebe odjeljka A ovog Dodatka:

(a) „skladištenje i distribucija benzina" znači utovar kamiona, željezničkih vagona, teglenica i brodova namijenjenih morskoj plovidbi, u skladištima i otpremnim postajama rafinerija mineralnih ulja, uključujući točenje goriva na benzinskim postajama;

(b) „nanošenje ljepila (adheziva)" znači svaka aktivnost nanošenja ljepila (adheziva) na neku površinu, s izuzetkom prianjajućih premaza i slojeva koji se koriste u tiskanju i proizvodnji drvenih i plastičnih laminata;

(c) „proizvodnja drvenih i plastičnih laminata“ znači svaka aktivnost s ciljem međusobnog prianjanja drveta i/ili plastike u slojevima;

(d) „aktivnost premazivanja“ znači svaka aktivnost jednokratnog ili višekratnog nanošenja neprekidnog sloja premaza na:

(i) nova vozila iz kategorije M1 te kategorije N1 ako se premazuju u istom postrojenju kao i vozila kategorije M1;

(ii) kamionske kabine za smještaj vozača, kao i cjeloviti smještajni prostor za tehničku opremu vozila kategorija N2 i N3;

(iii) kamione u kategorijama vozila N1, N2 i N3, ali ne i kamionske kabine;

(iv) autobuse u kategoriji vozila M2 i M3;

(v) ostale metalne i plastične površine, uključujući površine zrakoplova, brodova, vlakova itd.;

(vi) drvene površine;

(vii) tekstil, tkaninu, film i papirne podloge; i

(viii) kožu;

Ova kategorija izvora ne odnosi se na premazivanje metalnih podloga metodom elektroforeze ili kemijskog raspršivanja. Ako je aktivnost premazivanja postupak u kojem se na isti predmet nanosi tisak, taj postupak se smatra dijelom aktivnosti premazivanja. Ipak, aktivnosti tiskanja koje se odvijaju kao zasebna aktivnost nisu obuhvaćene ovom definicijom. Prema toj definiciji:

- vozila kategorije M1 vozila su za prijevoz putnika koja, osim vozačevog, imaju do osam sjedala;
- vozila kategorije M2 vozila su za prijevoz putnika koja, osim vozačevog, imaju više od osam sjedala i mase od najviše 5 Mg;
- vozila kategorije M3 vozila su za prijevoz putnika koja, osim vozačevog, imaju više od osam sjedala i masu veću od 5 Mg;
- vozila kategorije N1 vozila su za prijevoz robe, mase od najviše 3,5 Mg;
- vozila kategorije N2 vozila su za prijevoz robe, mase od 3,5 do 12 Mg;
- vozila kategorije N3 vozila su za prijevoz robe, mase veće od 12 Mg;

(e) ‚premazivanje zavojnice' znači svaka aktivnost kojom se zavojnice čelika, nehrđajućeg čelika, obloženog čelika, bakrenih legura ili aluminijskih traka neprekidno premazuju opnastim ili slojevitim premazom;

(f) ‚kemijsko čišćenje' znači svaka industrijska ili komercijalna aktivnost pri kojoj se HOS-ovi koriste u postrojenju za čišćenje odjevnih predmeta, namještaja i slične robe široke potrošnje, s izuzetkom ručnog uklanjanja mrlja u tekstilnoj industriji i industriji odjeće;

(g) ‚proizvodnja premaza, lakova, boja i ljepila' znači proizvodnja pripravaka za premazivanje, lakova, boja i ljepila, kao i poluproizvoda ako se proizvode u istom postrojenju miješanjem pigmenata, guma i prianjajućih materijala s organskim otapalima ili drugim prijenosnicima. Ova kategorija uključuje i raspršivanje, predraspršivanje, dobivanje određene gustoće ili boje i pakovanje konačnih proizvoda u spremnike;

(h) ‚tiskanje' znači svaka aktivnost reprodukcije teksta i/ili slika pri kojoj se, putem prijenosnika slike, tinta prenosi na neku površinu, a odnosi se na sljedeće podaktivnosti:

(i) fleksografija:tiskarska aktivnost pri kojoj se koristi gumeni ili fotopolimerni elastični prijenosnik slike na kojem se tinta za otiskivanje nalazi iznad područja koja ostaju prazna, korištenjem tekućih tinti koje se suše isparavanjem;

(ii) toplinski podešeni otisak:tiskarska aktivnost pri kojoj se s pomoću prijenosnika slike područje namijenjeno tiskanju i područje koje ostaje prazno stavljaju u istu ravninu, pri čemu se materijal na koji će se tiskati u stroj ubacuje putem papirnog valjka, a ne u pojedinačnim listovima. Područje koje ostaje prazno obrađeno je tako da privlači vodu i time odbija tintu. Područje namijenjeno otiskivanju obrađeno je tako da prima i prenosi tintu na površinu namijenjenu tiskanju. Isparavanje se odvija u peći s pomoću vrućeg zraka kojim se zagrijava materijal s otiskom;

(iii) rotogravura u izdavaštvu:rotogravura koja se koristi kod tiskanja papira za časopise, brošure, kataloge ili slične proizvode, s pomoću tinti na bazi toluena

(iv) rotogravura:tiskarska aktivnost s pomoću cilindričnog prijenosnika slike pri kojoj je područje namijenjeno tiskanju ispod područja koje ostaje prazno, korištenjem tekućih tinti koje se suše isparavanjem. Udubljenja se ispunjavaju tintom, a višak se čisti s područja koje ostaje prazno prije nego površina namijenjena tiskanju dotakne cilindar i pokupi tintu iz udubljenja;

(v) . tiskanje rotacijskim zaslonom:proces tiskanja u kojem se tinta prenosi na površinu protiskivanjem kroz šupljikavi prijenosnik slike, pri čemu je područje namijenjeno otiskivanju otvoreno, a područje koje ostaje prazno odvojeno je posebnim slojem, s pomoću tekućih tinti koje se suše isključivo isparavanjem. Materijal na koji će se tiskati u stroj ubacuje se putem papirnog valjka, a ne u pojedinačnim listovima;

(vi) proizvodnja laminata povezana s tiskarskom aktivnosti:prianjanje dvaju ili više savitljivih materijala u slojevima; i

(vii) lakiranje:aktivnost kojom se lak ili prianjajući premaz nanosi na savitljivi materijal u svrhu naknadnog zatvaranja ambalažnog materijala;

(i) proizvodnja farmaceutskih proizvoda' znači kemijska sinteza, fermentacija, ekstrakcija, formulacija i dovršavanje farmaceutskih proizvoda i, tamo gdje se provodi na istoj lokaciji, proizvodnja poluproizvoda;

(j) ‚pretvaranje prirodne ili sintetičke gume' znači svaka aktivnost miješanja, gnječenja, spajanja, valjanja, protiskivanja i vulkanizacije prirodne ili sintetičke gume te dodatne aktivnosti obrade prirodne ili sintetičke gume radi dobivanja gotovog proizvoda;

(k) ‚površinsko čišćenje' znači svaka aktivnost, osim kemijskog čišćenja, pri kojoj se koriste organska otapala za uklanjanje onečišćenja s površine materijala, uključujući odmašćivanje; aktivnosti čišćenja smatra se svaka aktivnost čišćenja koja se sastoji od više koraka prije ili nakon bilo kojeg drugog koraka obrade. Aktivnost se odnosi na čišćenje površine proizvoda, a ne na čišćenje opreme za preradu;

(l) ‚standardni uvjeti' znači temperatura od 273,15 K i tlak od 101,3 kPa;

(m) ‚organski spoj' znači svaki spoj koji se sastoji od najmanje ugljika i vodika, halogena, kisika, sumpora, fosfora, silikona ili dušika, uz iznimku ugljikovih oksida i anorganskih karbonata i bikarbonata

(n) ‚hlapiv organski spoj' (HOS) znači svaki organski spoj, kao i frakcija kreozota, koji pri 293,15 K ima tlak pare od 0,01 kPa ili više ili odgovarajuću hlapivost u određenim uvjetima upotrebe;

(o) ‚organsko otapalo' znači svaki HOS koji se koristi sam ili u kombinaciji s drugim tvarima i bez kemijske promjene za otapanje sirovine, proizvoda ili otpadnih materijala, ili koji se koristi kao sredstvo za čišćenje za otapanje onečišćujućih tvari, ili kao otapalo, ili kao medij za raspršivanje, ili za prilagodbu viskoznosti, ili za prilagodbu površinske napetosti, ili za plastificiranje, ili kao konzervans;

(p) ‚otpadni plinovi' znači konačno ispuštanje plina koji sadržava HOS-ove ili druge onečišćujuće tvari ispuštene iz ispusta ili iz opreme za smanjivanje emisija u zrak. Volumetrijski protok izražava se u m^3/h pri normalnim uvjetima;

(q) ‚ekstrakcija biljnog ulja i životinjske masti i rafinacija biljnog ulja' znači ekstrakcija biljnog ulja iz sjemenki i drugih biljnih tvari, obrada suhih ostataka za dobivanje životinjske krme, pročišćavanje masti i biljnih ulja dobivenih iz sjemenki, bilja i/ili životinjske tvari;

(r) ‚završna obrada vozila' znači svaka industrijska ili komercijalna aktivnost premazivanja i srodne aktivnosti odmašćivanja kojom se izvršava:

(i) prvobitno premazivanje cestovnih vozila ili njihovih dijelova materijalima za završnu obradu, kada se taj postupak obavlja izvan prvobitne proizvodne linije, ili premazivanje prikolica (uključujući poluprikolice);

(ii) završna obrada vozila koja se definira kao premazivanje cestovnih vozila ili njihovih dijelova, koja se obavlja kao dio popravka, konzerviranja ili ukrašavanja vozila izvan proizvodnih pogona nije obuhvaćena ovim Dodatkom. Proizvodi koji se koriste pri ovoj aktivnosti navode se u Dodatku IX.;

(s) ‚impregnacija drvenih površina' znači svaka aktivnost zaštite drva zaštitnim sredstvima;

(t) ‚premazivanje žice za namote' znači svaka aktivnost premazivanja metalnih vodiča koji se koriste za namatanje zavojnica u transformatorima i motorima, itd.;

(u) ‚fugitivna emisija' znači svaka emisija hlapivih organskih spojeva, ne u otpadnim plinovima, u zrak, tlo i vodu kao i, ako nije drukčije navedeno, otapala sadržana u bilo kojem proizvodu; time su obuhvaćene neuhvaćene emisije HOS-ova ispuštene u okoliš kroz prozore, vrata, odzračne i slične otvore. Fugitivne emisije mogu se izračunati na temelju plana upravljanja otapalima (vidi Prilog I. ovom Dodatku);

(v) ‚ukupna emisija HOS-ova' znači zbroj fugitivne emisije HOS-ova i emisije HOS-ova u otpadnim plinovima;

(w) ‚unos' znači količina organskih otapala i njihova količina u pripravcima koji se koriste za obavljanje procesa, uključujući otapala oporabljena u postrojenju i izvan njega, koje se izračunavaju svaki put kada se koriste u obavljanju aktivnosti;

(x) ‚granična vrijednost emisije' (GVE) znači najveća količina HOS-a (osim metana) iz postrojenja koja se ne smije premašiti tijekom uobičajenog rada. Kod otpadnih plinova ona se izražava kao masa HOS-a po jedinici volumena otpadnih plinova (izražena u mg C/Nm^3, osim ako nije drukčije navedeno), u standardnim uvjetima temperature i tlaka za suhi plin. Količine plina koje se dodaju otpadnom plinu radi hlađenja ili razrjeđivanja ne uzimaju se u obzir pri određivanju masene koncentracije onečišćujuće tvari u otpadnim plinovima. Granične vrijednosti emisije za otpadne plinove navode se kao HOSc, a granične vrijednosti emisije za fugitivne emisije kao GVEf;

(y) ‚uobičajeni rad' znači sva razdoblja rada osim uključivanja i isključivanja postrojenja te održavanja opreme;

(z) ‚tvari štetne po ljudsko zdravlje' dijele se na dvije kategorije:

(i) halogenirani HOS-ovi koji predstavljaju mogući rizik nepovratnih učinaka; ili

(ii) opasne tvari koje su karcinogene, mutagene ili toksične za reprodukciju ili koje mogu uzrokovati rak, nasljedna genetska oštećenja, rak izazvan udisanjem, narušiti plodnost ili uzrokovati oštećenja na nerođenom djetetu:

(aa) ‚proizvodnja obuće' znači svaka aktivnost proizvodnje cjelokupne obuće ili njezinih dijelova

(bb) ‚potrošnja otapala' znači ukupni ulaz organskih otapala u postrojenje u kalendarskoj godini ili bilo kojem drugom razdoblju od 12 mjeseci, umanjen za sve HOS-ove koji se oporabljuju za ponovno korištenje.

4. Sljedeći zahtjevi trebaju biti zadovoljeni:

(a) emisije se nadziru u svim slučajevima putem mjerenja ili izračuna ([1]) kojima se ostvaruje najmanje ista preciznost. Sukladnost s GVE-ima provjerava se putem stalnih i povremenih mjerenja, homologacije tipa ili bilo koje druge tehnički valjane metode. Kod emisija otpadnih plinova u slučaju stalnih mjerenja, sukladnost s GVE-ima postiže se ako potvrđeni dnevni prosjek emisije ne premašuje GVE-ove. Kod povremenih mjerenja ili drugih odgovarajućih postupaka utvrđivanja ili izračuna, sukladnost s GVE-ima postiže se ako prosjek svih očitanja ili drugih postupaka unutar jednog nadzora ne premašuje granične vrijednosti. Nepreciznost metoda mjerenja može se uzeti u obzir kod provjere. Fugitivni i ukupni GVE-ovi primjenjuju se kao godišnji prosjeci;

(b) koncentracije onečišćujućih tvari u ispušnim kanalima mjere se na reprezentativan način. Nadzor odgovarajućih onečišćujućih tvari i mjerenja parametara postupka, kao i osiguranje kvalitete automatskih sustava i referentnih mjerenja za umjeravanje tih sustava provode se u skladu s normama CEN-a. Ako norme CEN-a nisu dostupne, primjenjuju se norme ISO-a, nacionalne ili međunarodne norme kojima će se osigurati dostava podataka jednake znanstvene kvalitete.

5. Sljedeći se GVE-ovi primjenjuju za otpadne plinove koji sadržavaju tvari štetne po ljudsko zdravlje:

(a) 20 mg/m^3 (izraženo kao maseni zbroj pojedinačnih spojeva) za ispuštanja halogeniranih HOS-ova kojima se dodjeljuju sljedeće oznake rizika: ‚sumnja se da uzrokuje rak' i/ili ‚sumnja se da uzrokuje genetska oštećenja', pri čemu je maseni protok zbroja razmatranih spojeva veći od ili jednak 100 g/h; i

(b) 2 mg/m^3 (izraženo kao maseni zbroj pojedinačnih spojeva) za ispuštanja HOS-ova kojima se dodjeljuju sljedeće oznake rizika: ‚može uzrokovati rak', ‚može uzrokovati genetska oštećenja', ‚može smanjiti plodnost', ‚može naškoditi nerođenom djetetu', pri čemu je maseni protok zbroja razmatranih spojeva veći od ili jednak 10 g/h.

6. Za kategorije izvora navedene u stavcima od 9. do 22. kod kojih se pokaže da sukladnost pojedinačnog postrojenja s graničnom vrijednosti fugitivne emisije (GVEf) nije tehnički i ekonomski izvediva, stranka ga može izuzeti uz uvjet da se ne očekuju znatni rizici za ljudsko zdravlje ili okoliš te da se koriste najbolje dostupne tehnike.

7. Granične vrijednosti emisija HOS-ova za kategorije izvora iz stavka 3. navedene su u stavcima od 8. do 22.

([1]) Metode izračuna navest će se u smjernici koju donosi Izvršno tijelo.

8. Skladištenje i distribucija benzina:

(a) postrojenja za skladištenje benzina na terminalima, kad dode do premašivanja graničnih vrijednosti iz tablice 1., moraju biti:

(i) spremnici s fiksnim krovom koji su priključeni na jedinicu za sakupljanje para koja je u sukladnosti s GVE-ima utvrđenima tablicom 1.; ili

(ii) projektirani tako da imaju vanjski ili unutarnji plivajući krov, opremljen primarnim i sekundarnim brtvama koje su u skladu sa učinkovitosti smanjenja utvrđenim tablicom 1.;

(b) kao odstupanje od gore navedenih zahtjeva, spremnici s fiksnim krovom koji su bili u pogonu prije 1. siječnja 1996. i koji nisu priključeni na jedinicu za sakupljanje para, moraju biti opremljeni primarnom brtvom kojom se ostvaruje učinkovitost smanjenja od 90 %.

Tablica 1.

Granične vrijednosti emisija HOS-ova iz skladištenja i distribucije benzina, s izuzetkom utovara brodova namijenjenih morskoj plovidbi (faza I.)

Aktivnost	*Granična vrijednost*	*GVE ili učinkovitost smanjenja*
Punjenje i pražnjenje pokretnog spremnika na terminalima	godišnji protok benzina 5 000 m^3	10 g HOS/m^3 uključujući metan [a]
Uređaji za skladištenje na terminalima	Postojeći terminali ili spremnici s protokom benzina od 10 000 Mg/godišnje ili više	95 wt-% [b]
	Novi terminali (bez graničnih vrijednosti, osim za terminale na malim, udaljenim otocima s protokom manjim od 5 000 Mg/godišnje)	
Benzinske postaje	Protok benzina veći od 100 m^3/godišnje	0,01wt-% protoka [c]

[a] Pare istisnute punjenjem benzina u spremnike premještaju se u drugi spremnik ili u opremu za smanjivanje emisije koja je u skladu s graničnim vrijednostima iz gornje tablice.

[b] Učinkovitost smanjenja izražena u postotcima u usporedbi s usporedivim spremnikom s fiksnim krovom bez kontrola za prikupljanje para, odnosno samo s vakuumsko-tlačnim odušnim ventilom.

[c] Pare koje se oslobađaju prilikom pretakanja benzina u postrojenja za skladištenje na benzinskim postajama i u spremnike s fiksnim krovom koji se koriste za prijelazno skladištenje para moraju se vratiti kroz paronepropusni priključni cjevovod u pokretni spremnik iz kojeg se toči benzin. Punjenje se ne smije obavljati ako ti uređaji nisu u funkciji i ako ne rade ispravno. U takvim uvjetima nije potreban dodatni nadzor u pogledu sukladnosti s graničnom vrijednošću.

Tablica 2.

Granične vrijednost emisija HOS-ova za punjenje spremnika automobila gorivom na benzinskoj postaji (faza II.)

Granična vrijednost potrošnje	*Minimalna učinkovitost sakupljanja pare wt- %*[a]
Nova benzinska postaja ako je njezin stvarni ili planirani protok veći od 500 m^3 godišnje Postojeća benzinska postaja ako je njezin stvarni ili planirani protok veći od 3 000 m^3 godišnje od 2019. Postojeća benzinska postaja ako je njezin stvarni ili planirani protok veći od 500 m^3 godišnje i koja se znatnije renovira	Jednako ili veće od 85 % wt-% s omjerom pare/benzina jednakim ili većim od 0,95, ali manjim od ili jednakim 1,05 (v/v).

[a] Učinkovitost sustava u pogledu prikupljanja mora potvrditi proizvođač u skladu s mjerodavnim tehničkim normama ili postupcima homologacije tipa.

9. Nanošenje ljepila (adheziva):

Tablica 3.

Granične vrijednosti za premazivanje ljepilom

Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Proizvodnja obuće (potrošnja otapala > 5 Mg/godišnje)	25 [a] g HOS/par cipela
Ostalo premazivanje ljepilom (potrošnja otapala 5–15 Mg/godišnje)	GVEc = 50 mg [b] C/m^3 GVEf = 25 wt-% ili manje unosa otapala *Ili* ukupni GVE od 1,2 kg ili manje HOS/kg krutog unosa
Ostalo premazivanje ljepilom (potrošnja otapala 15–200 Mg/godišnje)	GVEc = 50 mg [b] C/m^3 GVEf = 20 wt-% ili manje unosa otapala *Ili* ukupni GVE od 1 kg ili manje HOS/kg krutog unosa
Ostalo premazivanje ljepilom (potrošnja otapala > 200 Mg/godišnje)	GVEc = 50 mg [c] C/m^3 GVEf = 15 wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,8 kg ili manje HOS/kg krutog unosa

[a] Ukupni GVE-ovi izraženi su u gramima otapala koji se ispuštaju po paru cjelokupne proizvedene obuće.

[b] Ako se koriste tehnike kojima se omogućava ponovno korištenje oporabljenog otapala, granična je vrijednost 150 mg C/m^3.

[c] Ako se koriste tehnike kojima se omogućava ponovno korištenje oporabljenog otapala, granična je vrijednost 100 mg C/m^3.

10. Proizvodnja drvenih i plastičnih laminata:

Tablica 4.

Granične vrijednosti za proizvodnju drvenih i plastičnih laminata

Aktivnost i granična vrijednost	*GVE za HOS (godišnji)*
Proizvodnja drvenih i plastičnih laminata (potrošnja otapala > 5 Mg/godišnje)	Ukupni GVE od 30 g HOS/m^2gotovog proizvoda

11. Aktivnosti premazivanja (industrija premazivanja automobila)

Tablica 5.

Granične vrijednosti za aktivnosti premazivanja u automobilskoj industriji

Aktivnost i granična vrijednost	*GVE za HOS* [a] *(godišnji za ukupni GVE)*
Proizvodnja automobila (M1, M2) (potrošnja otapala > 15 Mg/godišnje i ≤ 5 000 premazanih automobila godišnje ili > 3 500 sagrađenih šasija)	90 g HOS/m^2 ili 1,5 kg/ karoserija + 70 g/m^2
Proizvodnja automobila (M1, M2) (potrošnja otapala 15–200 Mg/godišnje i > 5 000 premazanih automobila godišnje)	*Postojeća postrojenja*: 60g HOS/m^2 ili 1,9 kg/karoserija + 41 g/m^2 *Nova postrojenja*: 45 g HOS/m^2 ili 1,3 kg/karoserija + 33 g/m^2
Proizvodnja automobila (M1, M2) (potrošnja otapala > 200 Mg/godišnje i > 5 000 premazanih automobila godišnje)	35 g HOS/m^2 ili 1 kg/karoserija + 26 g/m^2 [b]
Proizvodnja kamionskih kabina (N1, N2, N3) (potrošnja otapala > 15 Mg/godišnje i ≤ 5 000 premazanih kabina/godišnje)	*Postojeća postrojenja*: 85 g HOS/m^2 *Nova postrojenja*: 65 g HOS/m^2
Proizvodnja kamionskih kabina (N1, N2, N3) (potrošnja otapala15–200 mg/godišnje i > 5 000 premazanih kabina/godišnje)	*Postojeća postrojenja:* 75 g HOS/m^2 *Nova postrojenja:* 55 g HOS/m^2
Proizvodnja kamionskih kabina (N1, N2, N3) (potrošnja otapala > 200 Mg/godišnje i > 5 000 premazanih kabina/godišnje)	55 g HOS/m^2

Aktivnost i granična vrijednost	*GVE za HOS a (godišnji za ukupni GVE)*
Proizvodnja kamiona (potrošnja otapala > 15 mg/godišnje i ≤ 2 500 premazanih kamiona godišnje)	*Postojeća postrojenja*: 120 g HOS/m^2 *Nova postrojenja*: 90 g HOS/m^2
Proizvodnja kamiona (potrošnja otapala 15–200 15 Mg/godišnje i > 2 500 premazanih kamiona godišnje)	*Postojeća postrojenja*: 90 g HOS/m^2 *Nova postrojenja*: 70 g HOS/m^2
Proizvodnja kamiona (potrošnja otapala > 200 Mg/godišnje i > 2 500 premazanih kamiona godišnje)	50 g HOS/m^2
Proizvodnja autobusa (potrošnja otapala > 15 Mg/godišnje i ≤ 2 000 premazanih autobusa godišnje)	*Postojeća postrojenja*: 290 g HOS/m^2 *Nova postrojenja*: 210 g HOS/m^2
Proizvodnja autobusa (potrošnja otapala 15–200 Mg/godišnje i > 2 000 premazanih autobusa godišnje)	*Postojeća postrojenja*: 225 g HOS/m^2 *Nova postrojenja*: 150 g HOS/m^2
Proizvodnja autobusa (potrošnja otapala > 200 Mg/godišnje i > 2 000 premazanih autobusa godišnje)	150 g HOS/m^2

[a] Ukupne granične vrijednosti izražene su kao masa organskog otapala (g) koja se ispušta u odnosu na površinu proizvoda (m2). Površina proizvoda definira se kao površina izračunana iz ukupne površine elektroforetski premaznog područja i površine svih dijelova koji joj se mogu dodati u sljedećim stupnjevima procesa premazivanja, a koji se premazuju istim premazom. Površina elektroforetski premaznog područja izračunava se po formuli: (2 × ukupna težina proizvodne ljuske)/(prosječna debljina metalne ploče × gustoća metalne ploče). Ukupni GVE-ovi utvrđeni gornjom tablicom odnose se na sve faze postupka koje se odvijaju u istom postrojenju, od elektroforetskog premazivanja ili bilo koje druge vrste postupka premazivanja, preko završnog premazivanja voskom i poliranja kao dijela završnog premazivanja, do otapala koje se koristi za čišćenje opreme, uključujući kabine za špricanje i ostalu ugrađenu opremu, tijekom i nakon postupka proizvodnje.

[b] Kod postojećih postrojenja koja postižu te razine mogu biti uključeni učinci različitih medija, visoki kapitalni troškovi i duga razdoblja povrata. Velikim smanjenjima koraka u emisijama HOS-ova zahtijeva se promjena tipa sustava boje i/ili sustava nanošenja boje i/ili sustava sušenja, a to obično znači novo postrojenje ili potpuna obnova lakirnice za što je potrebno znatno kapitalno ulaganje.

12. Aktivnosti premazivanja (premazivanje metala, tekstila, tkanine, plastike, papira i drvenih površina):

Tablica 6.

Granične vrijednosti za aktivnosti premazivanja u različitim industrijskim sektorima

Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Premazivanje drvenih površina (potrošnja otapala 15–25 Mg/godišnje)	GVEc = 100 [a] mg C/m^3 GVEf = 25 wt-% ili manje unosa otapala

	Ili ukupni GVE od 1,6 kg ili manje HOS/kg krutog unosa
Premazivanje drvenih površina (potrošnja otapala 25–200 Mg/godišnje)	GVEc = 50 mg C/m^3 za sušenje i 75 mg C/m^3 za premazivanje GVEf = 20 wt-% ili manje unosa otapala *Ili* ukupni GVE od 1 kg ili manje HOS/kg krutog unosa
Premazivanje drvenih površina (potrošnja otapala > 200 Mg/godišnje)	GVEc = 50 mg C/m^3 za sušenje i 75 mg C/m^3 za premazivanje GVEf = 15 wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,75 kg ili manje HOS/kg krutog unosa
Premazivanje metala i plastike (potrošnja otapala 5–15 Mg/godišnje)	GVEc = 100 [a,b] mg C/m^3 GVEf = 25 [b] wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,6 kg ili manje HOS/kg krutog unosa
Ostalo premazivanje, uključujući premazivanje tekstila, tkanine, folije i papira (isključujući tiskanje s papirnih valjaka na tekstil, vidi tiskanje) (potrošnja otapala 5–15 Mg/godišnje)	GVEc = 100 [a,b] mg C/m^3 GVEf = 25 [b] wt-% ili manje unosa otapala *Ili* ukupni GVE od 1,6 kg ili manje HOS/kg krutog unosa

Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Premazivanje tekstila, tkanine, folije i papira (isključujući tiskanje s papirnih valjaka na tekstil, vidi tiskanje) (potrošnja otapala > 15 Mg/godišnje)	GVEc = 50 mg C/m^3 za sušenje i 75 mg C/m^3 za premazivanje [b,c] GVEf = 20 [b] wt-% ili manje unosa otapala *Ili* ukupni GVE od 1 kg ili manje HOS/kg krutog unosa
Premazivanje plastičnih predmeta (potrošnja otapala 15–200 mg/godišnje)	GVEc = 50 mg C/m^3 za sušenje i 75 mg C/m^3 za premazivanje [b] GVEf = 20 [b] wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,375 kg ili manje

	HOS/kg krutog unosa
Premazivanje plastičnih predmeta (potrošnja otapala > 200 Mg/godišnje)	GVEc = 50 mg C/m^3 za sušenje i 75 mg C/m^3 za premazivanje [b] GVEf = 20 [b] wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,35 kg ili manje HOS/kg krutog unosa
Premazivanje metalnih površina (potrošnja otapala 15–200 Mg/godišnje)	GVEc = 50 mg C/m^3 za sušenje i 75 mg C/m^3 za premazivanje [b] GVEf = 20 [b] wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,375 kg ili manje HOS/kg krutog unosa Iznimka za premaze u dodiru s hranom: Ukupni GVE od 0,5825 kg ili manje HOS/kg krutog unosa
Premazivanje metalnih površina (potrošnja otapala > 200/godišnje)	GVEc = 50 mg C/m^3 za sušenje i 75 mg C/m^3 za premazivanje [b] GVEf = 20 [b] wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,33 kg ili manje HOS/kg krutog unosa Iznimka za premaze u dodiru s hranom: Ukupni GVE od 0,5825 kg ili manje HOS/kg krutog unosa

[a] Granična vrijednost primjenjuje se na nanošenje premaza i sušenje u kontroliranim uvjetima.

[b] Ako za premazivanje nije moguće postići kontrolirane uvjete (izgradnja čamaca, premazivanje zrakoplova itd.), postrojenja mogu biti izuzeta od obveze poštovanja tih vrijednosti. Tada se treba koristiti programom smanjivanja, osim ako takva mogućnost nije tehnički i gospodarski izvediva. U tom se slučaju koristi najboljom dostupnom tehnikom.

[c] Ako se kod premazivanja tekstila koriste tehnikama kojima se omogućava ponovno korištenje oporabljenih otapala, granična je vrijednost 150 mg C/m^3 za sušenje i premazivanje.

13. Aktivnosti premazivanja (premazivanje kože i žice za namote):

Tablica 7.

Granične vrijednosti za premazivanje kože i žice za namote

Aktivnost i granična vrijednost	*GVE za HOS (godišnji za ukupni GVE)*
Premazivanje kože koja se koristi za unutarnje opremanje i određene kožne predmete koji se koriste kao mali predmeti široke potrošnje poput torbi, remena, lisnica itd. (potrošnja otapala > 10 Mg/godišnje)	Ukupni GVE od 150 g/m^2
Ostalo premazivanje kože (potrošnja otapala 10–25 Mg/godišnje)	Ukupni GVE od 85 g/m^2
Ostalo premazivanje kože (potrošnja otapala > 25 Mg/godišnje)	Ukupni GVE od 75 g/m^2
Premazivanje žice za namote (potrošnja otapala > 5 Mg/godišnje)	Ukupni GVE od 10 g/kg primjenjuje se za sva postrojenja s prosječnim promjerom žice ≤ 0,1 mm Ukupni GVE od 5 g/kg primjenjuje se za sva ostala postrojenja

14. Aktivnosti premazivanja (premazivanje zavojnice):

Tablica 8.

Granične vrijednosti za premazivanje zavojnice

Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Postojeće postrojenje (potrošnja otapala 25–200 Mg/godišnje)	GVEc = 50 [a] mg C/m^3 GVEf = 10 wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,45 kg ili manje HOS/kg krutog unosa
Postojeće postrojenje (potrošnja otapala > 200 Mg/godišnje)	GVEc = 50 [a] mg C/m^3 GVEf = 10 wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,45 kg ili manje HOS/kg krutog unosa

Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Novo postrojenje (potrošnja otapala 25–200 Mg/godišnje)	GVEc = 50 mg C/m^3 [a] GVEf = 5 wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,3 kg ili manje HOS/kg krutog unosa
Novo postrojenje (potrošnja otapala > 200 Mg/godišnje)	GVEc = 50 [a] mg C/m^3 GVEf = 5 wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,3 kg ili manje HOS/kg krutog unosa

[a] Ako se koristi tehnikama kojima se omogućava ponovno korištenje oporabljenog otapala, granična je vrijednost 150 mg C/m^3.

15. Kemijsko čišćenje:

Tablica 9.

Granične vrijednosti za kemijsko čišćenje

Aktivnost	*GVE za HOS [a,b] (godišnji za ukupni GVE)*
Nova i postojeća postrojenja	Ukupni GVE od 20 g HOS/kg

[a] Granična vrijednost za ukupne emisije HOS-ova izračunana kao masa ispuštenog HOS-a po masi očišćenog i osušenog proizvoda.

[b] Ova se razina emisije može postići korištenjem najmanje strojeva tipa IV ili učinkovitijih strojeva.

16. Proizvodnja premaza, lakova, tinte i ljepila:

Tablica 10.

Granične vrijednosti za proizvodnju premaza, lakova, tinti i ljepila

Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Nova i postojeća postrojenja s potrošnjom otapala između 100 i 1 000 Mg/godišnje	GVEc = 150 mg C/m^3 GVEf [a] = 5 wt-% ili manje unosa otapala *Ili* ukupni GVE od 5 wt-% ili manje unosa otapala
Nova i postojeća postrojenja s potrošnjom otapala > 1 000 Mg/godišnje	GVEc = 150 mg C/m^3 GVEf [a] = 3 wt-% ili manje unosa otapala *Ili* ukupni GVE od 3 wt-% ili manje unosa otapala

[a] Fugitivnom graničnom vrijednošću nisu obuhvaćena otapala koja se prodaju kao dio pripreme u zatvorenom spremniku.

17. Tiskarske aktivnosti (fleksografija, toplinski podešeni tisak, rotogravura u izdavaštvu itd.):

Tablica 11.

Granične vrijednosti za tiskarske aktivnosti

Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Toplinski podešeni tisak (potrošnja otapala 15–25 Mg/godišnje)	GVEc = 100 mg C/m^3 GVEf = 30 wt-% ili manje unosa otapala [a]
Toplinski podešeni tisak (potrošnja otapala 25–200 Mg/godišnje)	Nova i postojeća postrojenja GVEc = 20 mg C/m^3 GVEf = 30 wt-% ili manje unosa otapala [a]
Toplinski podešeni tisak (potrošnja otapala > 200 Mg/godišnje)	Za nove i modernizirane preše Ukupni GVE = 10 wt-% ili manje potrošnje tinte [a] Za postojeće *preše* Ukupni GVE = 15 wt-% ili manje potrošnje tinte [a]
Gravura u izdavaštvu (potrošnja otapala 25–200 Mg/godišnje)	Za nova postrojenja GVEc = 75 mg C/m^3 GVEf = 10 wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,6 kg ili manje HOS/kg krutog unosa Za postojeća postrojenja GVEc = 75 mg C/m^3 GVEf = 15 wt-% ili manje unosa otapala *Ili* ukupni GVE od 0,8 kg ili manje HOS/kg krutog unosa
Gravura u izdavaštvu (potrošnja otapala > 200 mg/godišnje)	Za nova postrojenja Ukupni GVE = 5 wt-% ili manje unosa otapala Za postojeća postrojenja Ukupni GVE = 7 wt-% ili manje unosa otapala
Rotogravura u pakiranju i fleksografija (potrošnja otapala 15–25 Mg/godišnje)	GVEc = 100 mg C/m^3 GVEf = 25 wt-% ili manje unosa otapala

	Ili ukupni GVE od 1,2 kg ili manje HOS/kg krutog unosa
Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Rotogravura u pakiranju i fleksografija (potrošnja otapala 25–200 Mg/godišnje) i tiskanje rotacijskim zaslonom (potrošnja otapala > 30 Mg/godišnje)	GVEc = 100 mg C/m^3 GVEf = 20 wt-% ili manje unosa otapala *Ili* ukupni GVE od 1,0 kg ili manje HOS/kg krutog unosa
Rotogravura u pakiranju i fleksografija (potrošnja otapala > 200 Mg/godišnje)a	*Za pogone sa svim strojevima priključenima na uređaje za oksidaciju:* Ukupni GVE = 0,5 kg HOS/kg krutog unosa *Za pogone sa svim strojevima priključenima na uređaje za apsorpciju ugljika:* Ukupni GVE = 0,6 kg HOS/kg krutog unosa *Za postojeće mješovite pogone u kojima neki postojeći strojevi možda nisu priključeni na peć ili uređaj za sakupljanje otapala:* Emisije iz *strojeva priključenih na uređaje za oksidaciju ili apsorpciju ugljika* ispod su graničnih vrijednosti emisije od 0,5, odnosno 0,6 HOS/kg krutog unosa. *Za strojeve koji nisu priključeni na uređaj za pročišćavanje plinova:* koristite proizvode s malim udjelom ili bez otapala, priključak na uređaj za pročišćavanje plinova gdje postoji višak kapaciteta i usmjeravajte proizvodnju s visokim udjelom otapala na strojeve priključene na uređaj za pročišćavanje otpadnih plinova. Ukupne emisije ispod 1,0 kg HOS/kg krutog unosa

[a] Fugitivnom graničnom vrijednošću nisu obuhvaćena otapala koja se prodaju kao dio pripreme u zatvorenom spremniku.

18. Proizvodnja farmaceutskih proizvoda:

Tablica 12.

Granične vrijednosti za proizvodnju farmaceutskih proizvoda

Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Nova postrojenja (potrošnja otapala > 50 Mg/godišnje)	GVEc = 20 mg C/m^3 [a,b]

	GVEf = 5 wt-% ili manje unosa otapala [b]
Postojeća postrojenja (potrošnja otapala > 50 Mg/godišnje)	GVEc = 20 mg C/m^3 [a,c] GVEf = 15 wt-% ili manje unosa otapala [c]

[a] Ako se koristi tehnikama kojima se omogućava ponovno korištenje oporabljenim otapalima, granična je vrijednost 150 mg C/m3.

[b] Ukupna granična vrijednost od 5 % unosa otapala može se primijeniti umjesto GVEc i GVEf.

[c] Ukupna granična vrijednost od 15 % unosa otapala može se primijeniti umjesto GVEc i GVEf.

19. Pretvaranje prirodne ili sintetičke gume:

Tablica 13.

Granične vrijednosti za pretvaranje prirodne ili sintetičke gume

Aktivnost i granična vrijednost	*GVE za HOS(dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Nova i postojeća postrojenja: pretvaranje prirodne ili sintetičke gume (potrošnja otapala > 15 Mg/godišnje)	GVEc = 20 mg C/m^3 (56) GVEf = 25 wt-% unosa otapala (57) *Ili* ukupni GVE = 25 wt-% unosa otapala

[a] Ako se koriste tehnikama kojima se omogućava ponovno korištenje oporabljenim otapalima, granična je vrijednost 150 mg C/m3.

[b] Fugitivnom graničnom vrijednošću nisu obuhvaćena otapala koja se prodaju kao dio pripreme u zatvorenom spremniku.

20. Površinsko čišćenje:

Tablica 14.

Granične vrijednosti za površinsko čišćenje

Aktivnost i granična vrijednost	*Donja granična vrijednost potrošnje otapala (mg/god.)*	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*	
Površinsko čišćenje s pomoću tvari navedenih u stavku 3. točki (z) alineji (i) ovog Dodatka	1–5	GVEc = 20 mg izraženo kao maseni zbroj pojedinačnih spojeva/m^3	GVEf = 15 wt-% unosa otapala
	> 5	GVEc = 20 mg izraženo kao maseni zbroj pojedinačnih spojeva/m^3	GVEf = 10 wt-% unosa otapala
Ostalo površinsko čišćenje	2–10	GVEc = 75 mg C/m^3 [a]	GVEf = 20 wt % [a] unosa otapala

	> 10	GVEc = 75 mg C/m^3 [a]	GVEf = 15 wt-% [a] unosa otapala

[a] Postrojenja kod kojih prosječni udjel organskog otapala svih korištenih materijala za čišćenje ne prekoračuje 30 % wt-% izuzeta su od obveze primjene ovih vrijednosti.

21. Ekstrakcija biljnog ulja i životinjske masti i rafinacije biljnog ulja:

Tablica 15.

Granične vrijednosti za ekstrakciju biljnog ulja i životinjske masti i rafinaciju biljnog ulja

Aktivnost i granična vrijednost	*GVE za HOS (godišnji za ukupni GVE)*	
Nova i postojeća postrojenja (potrošnja otapala > 10 Mg/godišnje)	Ukupni GVE (kg HOS/Mg proizvoda)	
	Životinjska mast:	1,5
	Ricinus:	3,0
	Sjeme uljane repice:	1,0
	Sjeme suncokreta:	1,0
	Soja (krupno mljevena):	0,8
	Soja (brašno):	1,2
	Ostalo sjemenje i biljni materijal:	3,0 [a]
	Svi postupci frakcioniranja, osim uklanjanja smole iz ulja: [b]	1,5
	Uklanjanje smole iz ulja:	4,0

[a] Granične vrijednosti ukupnih emisija HOS-ova iz postrojenja koja obrađuju pojedinačne serije sjemenja ili drugog biljnog materijala stranka određuje prema pojedinačnim slučajevima na temelju najboljih dostupnih tehnika.

[b] Uklanjanje biljne smole iz ulja.

22. Impregnacija drva:

Tablica 16.

Granične vrijednosti za impregnaciju drvenih površina:

Aktivnost i granična vrijednost	*GVE za HOS (dnevni za GVEc i godišnji za GVEf i ukupni GVE)*
Impregnacija drvenih površina (potrošnja otapala 25–200 Mg/godišnje)	GVEc = 100 [a] mg C/m^3 GVEf = 45 wt-% ili manje unosa otapala *Ili* 11 kg ili manje HOS/m^3

Impregnacija drvenih površina (potrošnja otapala > 200 Mg/godišnje)	GVEc = 100 [a] mg C/m³ GVEf = 35 wt-% ili manje unosa otapala *Ili* 9 kg ili manje HOS/m³

[a] Ne primjenjuje se na impregnaciju kreozotom.

B. Kanada

23. Granične vrijednosti za nadzor emisija HOS-ova odredit će se za stacionarne izvore, prema potrebi, uzimajući u obzir informacije o dostupnim tehnologijama nadzora, granične vrijednosti koje se primjenjuju u ostalim nadležnostima i dokumente u nastavku:

(a) uredbe o graničnim vrijednostima koncentracija HOS-ova za premaze u arhitekturi. SOR/2009-264;

(b) Granične vrijednosti koncentracija HOS-ova za proizvode za završnu obradu automobila. SOR/2009-197;

(c) predložene uredbe o graničnim vrijednostima koncentracija HOS-ova za određene proizvode;

(d) Smjernice za smanjenje ispuštanja etilen-oksida pri postupcima sterilizacije;

(e) Ekološka smjernica za nadzor emisija iz postupka s hlapivim organskim spojevima iz novih djelatnosti s organskim kemikalijama. PN1108;

(f) Ekološki kodeks za mjerenje i nadzor fugitivnih emisija HOS-ova iz fizički oštećene opreme. PN1106;

(g) Program smanjenja emisija hlapivog organskog spoja iz ljepila i brtvila za 40 %. PN1116;

(h) Plan smanjenja emisija HOS-ova iz površinskih premaza na tržištu široke potrošnje za 20 %. PN1114;

(i) Ekološke smjernice za nadzor emisija hlapivih organskih spojeva iz nadzemnih spremnika. PN1180;

(j) Ekološki kodeks za oporabu pare tijekom točenja automobilskog goriva na benzinskim postajama i drugim objektima za distribuciju benzina. PN1184;

(k) Ekološki kodeks za smanjenje emisija otapala iz industrijskih i komercijalnih objekata za odmašćivanje. PN1182;

(l) Standardi i smjernice za smanjenje emisija hlapivog organskog spoja iz objekata za premazivanje kanadskog proizvođača originalne automobilske opreme za rad novih izvora. PN1234;

(m) Ekološka smjernica za smanjenje emisija hlapivog organskog spoja iz industrije prerade plastike. PN1276;

(n) Nacionalni akcijski plan kontrolu u pogledu okoliša tvari koje onečišćuju ozon i njihovih halougljičnih alternativa. PN1291;

(o) Plan upravljanja dušikovim oksidima (NOx) i hlapivim organskim spojevima (HOS-ovi) – faza I. PN1066;

(p) Ekološki kodeks za smanjenje emisija hlapivog organskog spoja iz komercijalne/industrijske tiskarske industrije. PN1301;

(q) Predloženi (5) standardi i smjernice za smanjenje emisija HOS-ova iz kanadskih premaza za industrijsko održavanje. PN1320; i

(r) Smjernice za smanjenje emisija HOS-ova u sektoru proizvodnje drvenog namještaja. PN1338.

C. Sjedinjene Američke Države

24. Granične vrijednosti za nadzor emisija HOS-ova iz stacionarnih izvora u sljedećim kategorijama stacionarnih izvora i izvori na koje se one primjenjuju navode se sljedećim dokumentima:

(a) brodovi-skladišta za naftne tekućine – 40. Zbornik saveznih propisa (Code of Federal Regulations – C.F.R.), odjeljak 60, pododjeljci K i Ka,

(b) brodovi-skladišta za hlapive organske tekućine – 40 C.F.R., odjeljak 60, pododjeljak Kb;

(c) naftne rafinerije – 40 C.F.R., odjeljak 60, pododjeljak J;

(d) površinsko premazivanje metalnog namještaja – 40 C.F.R., odjeljak 60, pododjeljak EE;

(e) površinsko premazivanje automobila i lakih kamiona – 40 C.F.R., odjeljak 60, pododjeljak MM;

(f) tiskanje rotogravurom u izdavaštvu – 40 C.F.R., odjeljak 60, pododjeljak QQ;

(g) površinsko premazivanje traka i etiketa osjetljivih na pritisak – 40 C.F.R., odjeljak 60, pododjeljak RR;

(h) površinsko premazivanje velikih strojeva, metalnih zavojnica i limenki za napitke – 40 C.F.R., odjeljak 60, pododjeljci SS, TT i WW;

(i) benzinski terminali – 40 C.F.R., odjeljak 60, pododjeljak XX;

(j) proizvodnja automobilskih guma – 40 C.F.R., odjeljak 60, pododjeljak BBB;

(k) proizvodnja polimera – 40 C.F.R., odjeljak 60, pododjeljak DDD;

(l) premazivanje i tiskanje fleksibilnih vinila i uretana – 40 C.F.R., odjeljak 60, pododjeljak FFF;

(m) fizička oštećenja opreme naftnih rafinerija i sustavi odvodnje otpadnih voda – 40 C.F.R., odjeljak 60, pododjeljci GGG i QQQ;

(n) proizvodnja sintetičkih vlakana – 40 C.F.R., odjeljak 60, pododjeljak HHH;

(o) kemijsko čišćenje naftom – 40 C.F.R., odjeljak 60, pododjeljak JJJ;

(p) kopnena postrojenja za obradu zemnog plina – 40 C.F.R., odjeljak 60, pododjeljak KKK;

(q) fizička oštećenja opreme u industriji proizvodnje sintetičkih organskih kemikalija, jedinice za oksidaciju zraka, destilacija i procesi u reaktorima – 40 C.F.R., odjeljak 60, pododjeljci VV, III, NNN i RRR;

(r) premazivanje magnetnih traka – 40 C.F.R., odjeljak 60, pododjeljak SSS;

(s) premazivanje industrijskih površina – 40 C.F.R., odjeljak 60, pododjeljak TTT;

(t) polimerni premazi na pomoćnim objektima – 40 C.F.R., odjeljak 60, pododjeljak VVV;

(u) stacionarni motori s unutarnjim sagorijevanjem – paljenje na iskru, 40 C.F.R., odjeljak 60, pododjeljak JJJJ;

(v) stacionarni motori s unutarnjim sagorijevanjem – paljenje kompresijom, 40 C.F.R., odjeljak 60, pododjeljak IIII; i

(w) novi i postojeći prijenosni spremnici goriva – 40 C.F.R., odjeljak 59, pododjeljak F.

25. Granične vrijednosti za nadzor emisija HOS-ova iz izvora koji podliježu Nacionalnim normama u pogledu emisije za opasne tvari koje onečišćuju zrak (HAP-ovi) navedene su u sljedećim dokumentima:

(a) organski HAP-ovi iz industrije proizvodnje sintetičkih organskih kemikalija – 40 C.F.R., odjeljak 63, pododjeljak F;

(b) organski HAP-ovi iz industrije proizvodnje sintetičkih organskih kemikalija: odvodi iz pogona za preradu, brodovi-skladišta, operacije prijenosa i otpadna voda – 40 C.F.R., odjeljak 63, pododjeljak G;

(c) organski HAP-ovi: fizičko oštećenje opreme – 40 C.F.R., odjeljak 63, pododjeljak H;

(d) komercijalni sterilizatori s pomoću etilen-oksida – 40 C.F.R., odjeljak 63, pododjeljak O;

(e) benzinski terminali i odteretne stanice– 40 C.F.R. odjeljak 63, pododjeljak R;

(f) odmašćivači na bazi halogeniranih otapala – 40 C.F.R., odjeljak 63, pododjeljak T;

(g) polimeri i smole (skupina I.) – 40 C.F.R., odjeljak 63, pododjeljak U;

(h) polimeri i smole (skupina II.) – 40 C.F.R., odjeljak 63, pododjeljak W;

(i) postrojenja za topljenje sekundarnog olova – 40 C.F.R., odjeljak 63, pododjeljak X;

(j) punjenje spremnika na tankerima – 40 C.F.R., odjeljak 63, pododjeljak Y;

(k) naftne rafinerije – 40 C.F.R., odjeljak 63, pododjeljak CC,

(l) otpad izvan lokacije i postupci oporabe – 40 C.F.R., odjeljak 63, pododjeljak DD;

(m) proizvodnja magnetnih traka – 40 C.F.R., odjeljak 63, pododjeljak EE;

(n) proizvodnja svemirske opreme – 40 C.F.R., odjeljak 63, pododjeljak GG,

(o) proizvodnja nafte i zemnog plina – 40 C.F.R., odjeljak 63, pododjeljak HH;

(p) gradnja i popravak brodova – 40 C.F.R., odjeljak 63, pododjeljak II;

(q) drveni namještaj – 40 C.F.R., odjeljak 63, pododjeljak JJ;

(r) tiskanje i izdavaštvo – 40 C.F.R., odjeljak 63, pododjeljak KK;

(s) pulpa i papir II (sagorijevanje) – C.F.R., odjeljak 63, pododjeljak MM;

(t) spremnici za skladištenje – 40 C.F.R., odjeljak 63, pododjeljak OO;

(u) spremnici – 40 C.F.R., odjeljak 63, pododjeljak PP;

(v) površinski bazeni – 40 C.F.R., odjeljak 63, pododjeljak QQ;

(w) pojedinačni odvodni sustavi – 40 C.F.R., odjeljak 63, pododjeljak RR;

(x) zatvoreni sustavi odzračivanja – 40 C.F.R., odjeljak 63, pododjeljak SS;

(y) fizička oštećenja opreme: razina nadzora 1 – 40 C.F.R., odjeljak 63, pododjeljak TT;

(z) fizička oštećenja opreme: razina nadzora 2 – 40 C.F.R., odjeljak 63, pododjeljak UU;

(aa) separatori ulja od vode i separatori organske vode – 40 C.F.R., odjeljak 63, pododjeljak VV;

(bb) brodovi-skladišta (spremnici): razina nadzora 2 – 40 C.F.R., odjeljak 63, pododjeljak WW;

(cc) jedinice za proizvodnju etilena – 40 C.F.R., odjeljak 63, pododjeljak XX;

(dd) generičke norme u pogledu najviše ostvarive tehnologije nadzora za nekoliko kategorija – 40 C.F.R., odjeljak 63, pododjeljak YY;

(ee) spalionice opasnog otpada – 40 C.F.R., odjeljak 63, pododjeljak EEE;

(ff) farmaceutska proizvodnja – 40 C.F.R., odjeljak 63, pododjeljak GGG;

(gg) prijenos i skladištenje zemnog plina – 40 C.F.R., odjeljak 63, pododjeljak HHH;

(hh) proizvodnja fleksibilne poliuretanske pjene – 40 C.F.R., odjeljak 63, pododjeljak III;

(ii) polimeri i smole: skupina IV – 40 C.F.R., odjeljak 63, pododjeljak JJJ;

(jj) proizvodnja cementa Portland – 40 C.F.R., odjeljak 63, pododjeljak LLL;

(kk) proizvodnja pesticidnog aktivnog sastojka – 40 C.F.R., odjeljak 63, pododjeljak MMM;

(ll) polimeri i smole: skupina IV – 40 C.F.R., odjeljak 63, pododjeljak OOO;

(mm) polieter polioli – 40 C.F.R., odjeljak 63, pododjeljak PPP;

(nn) proizvodnja sekundarnog aluminija – 40 C.F.R., odjeljak 63, pododjeljak RRR;

(oo) rafinerije nafte – 40 C.F.R., odjeljak 63, pododjeljak UUU;

(pp) postrojenja za obradu u javnom vlasništvu — 40 C.F.R., odjeljak 63, pododjeljak VVV;

(qq) proizvodnja prehrambenog kvasca – 40 C.F.R., odjeljak 63, pododjeljak CCCC;

(rr) distribucija organskih tekućina (osim benzina) – 40 C.F.R., odjeljak 63, pododjeljak EEEE;

(ss) proizvodnja raznih organskih kemikalija – 40 C.F.R., odjeljak 63, pododjeljak FFFF;

(tt) ekstrakcija otapala za proizvodnju biljnih ulja – 40 C.F.R., odjeljak 63, pododjeljak GGGG;

(uu) premazivanje automobila i lakih teretnih vozila – 40 C.F.R., odjeljak 63, pododjeljak IIII;

(vv) premazivanje papira i drugih mreža – 40 C.F.R., odjeljak 63, pododjeljak JJJJ;

(ww) površinsko premazivanje metalnih limenki – 40 C.F.R., odjeljak 63, pododjeljak KKKK;

(xx) premazivanje raznih metalnih dijelova i proizvoda – 40 C.F.R., odjeljak 63, pododjeljak MMMM;

(yy) površinsko premazivanje velikih aparata – 40 C.F.R., odjeljak 63, pododjeljak NNNN;

(zz) tiskanje, premazivanje i bojanje tkanine – 40 C.F.R., odjeljak 63, pododjeljak OOOO;

(aaa) površinsko premazivanje plastičnih dijelova i proizvoda – 40 C.F.R., odjeljak 63, pododjeljak PPPP;

(bbb) površinsko premazivanje drvne građe – 40 C.F.R., odjeljak 63, pododjeljak QQQQ;

(ccc) površinsko premazivanje metalnog namještaja – 40 C.F.R., odjeljak 63, pododjeljak RRRR;

(ddd) površinsko premazivanje metalnog zavojnica – 40 C.F.R., odjeljak 63, pododjeljak SSSS;

(eee) postupci završne obrade kože – 40 C.F.R., odjeljak 63, pododjeljak TTTT;

(fff) proizvodnja proizvoda od celuloze – 40 C.F.R., odjeljak 63, pododjeljak UUUU;

(ggg) proizvodnja čamaca – 40 C.F.R., odjeljak 63, pododjeljak VVVV;

(hhh) proizvodnja armirane plastike i smjesa – 40 C.F.R., odjeljak 63, pododjeljak WWWW;

(iii) proizvodnja automobilskih guma – 40 C.F.R., odjeljak 63, pododjeljak XXXX;

(jjj) stacionarni motori za izgaranje – 40 C.F.R., odjeljak 63, pododjeljak YYYY;

(kkk) stacionarni motori s unutrašnjim sagorijevanjem: kompresijsko paljenje – 40 C.F.R., odjeljak 63, pododjeljak ZZZZ;

(lll) proizvodnja poluvodiča – 40 C.F.R., odjeljak 63, pododjeljak BBBBB;

(mmm) ljevaonice čelika i željeza – 40 C.F.R., odjeljak 63, pododjeljak EEEEE;

(nnn) integrirana proizvodnja željeza i čelika – 40 C.F.R., odjeljak 63, pododjeljak FFFFF;

(ooo) prerada asfalta i proizvodnja krovnih obloga – 40 C.F.R., odjeljak 63, pododjeljak LLLLL;

(ppp) proizvodnja fleksibilne poliuretanske pjene – 40 C.F.R., odjeljak 63, pododjeljak MMMMM;

(qqq) ispitne stanice/ispitni stolovi za motore – 40 C.F.R., odjeljak 63, pododjeljak PPPPP;

(rrr) proizvodnja frikcijskih proizvoda – 40 C.F.R., odjeljak 63, pododjeljak QQQQQ;

(sss) proizvodnja vatrostalnih proizvoda – 40 C.F.R., odjeljak 63, pododjeljak SSSSS;

(ttt) bolnički sterilizatori s pomoću etilen-oksida – 40 C.F.R., odjeljak 63, pododjeljak WWWWW;

(uuu) terminali za distribuciju benzina, postrojenja za rasute terete i cjevovodi – 40 C.F.R., odjeljak 63, pododjeljak BBBBBB;

(vvv) objekti za distribuciju benzina – 40 C.F.R., odjeljak 63, pododjeljak CCCCCC;

(www) skidanje boje i razni postupci površinskog premazivanja na područnim izvorima – 40 C.F.R., odjeljak 63, pododjeljak HHHHHH;

(xxx) akrilna vlakna/proizvodnja modakrilnih vlakana (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak LLLLLL;

(yyy) proizvodnja crnog ugljika (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak MMMMMM;

(zzz) proizvodnja kemikalija (područni izvori): spojevi kroma – 40 C.F.R., odjeljak 63, pododjeljak NNNNNN;

(aaaa) proizvodnja kemikalija za područne izvore – 40 C.F.R., odjeljak 63, pododjeljak VVVVVV;

(bbbb) prerada asfalta i proizvodnja krovnih obloga (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak AAAAAAA; i

(cccc) proizvodnja boja i srodnih proizvoda (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak CCCCCCC.

Prilog
Plan upravljanja otapalima

Uvod

1. U ovom se Prilogu Dodatku o graničnim vrijednostima emisija HOS-ova iz stacionarnih izvora navode smjernice za izradu plana upravljanja otapalima. Njime se utvrđuju načela postupanja (stavak 2.), okvir za utvrđivanje masene bilance (stavak 3.) i zahtjevi za provjeru sukladnosti (stavak 4.).

Načela

2. Plan upravljanja otapalima ima sljedeću svrhu:

(a) provjera sukladnosti kako je utvrđeno Dodatkom; i

(b) utvrđivanje budućih mogućnosti smanjenja.

Definicije

3. Sljedeće definicije čine okvir za utvrđivanje masene bilance:

(a) unosi organskih otapala:

- I1. Količina organskih otapala ili njihova količina u kupljenim pripravcima koji se koriste kao sirovina u postupku u razdoblju u kojem se izračunava masena bilanca;
- I2. Količina organskih otapala ili njihova količina u pripravcima koji su oporabljeni i koji se ponovno koriste kao sirovina u postupku. (Oporabljeno otapalo broji se svaki put kad se koristi za obavljanje neke aktivnosti.);

(b) izlazi organskih otapala:

- O1. Emisije HOS-ova u otpadnim plinovima;
- O2. Organska otapala izgubljena u vodi, pri čemu se, prema potrebi, pri izračunu O5. uzima u obzir pročišćavanje otpadnih voda;

- O3. Količina organskih otapala koja ostaje kao nečistoća ili talog pri izlazu proizvoda iz postupka;
- O4. Neuhvaćene emisije organskih otapala u zrak. Ovim je emisijama obuhvaćeno prozračivanje prostorija pri čemu se zrak ispušta u vanjski okoliš kroz prozore, vrata, odzračne i slične otvore;
- O5. Organska otapala i/ili organski spojevi izgubljeni uslijed kemijskih ili fizikalnih reakcija (uključujući, na primjer, one uništene npr. spaljivanjem ili drugim postupcima pročišćavanja otpadnih plinova ili otpadnih voda, ili uhvaćene, primjerice, apsorpcijom, ako se ne ubrajaju u O6., O7. ili O8.) ;
- O6. Organska otapala u skupljenom otpadu;
- O7. Organska otapala ili organska otapala u pripravcima koja se prodaju ili su namijenjena prodaji kao proizvodi s komercijalnom vrijednošću;
- O8. Organska otapala sadržana u pripravcima/smjesama koji se oporabljuju za ponovnu upotrebu, ali ne kao unos u postupku, ako se ne ubrajaju u O7. ;
- O9. Organska otapala ispuštena na druge načine.

Smjernice za korištenje plana upravljanja otapalima za provjeru sukladnosti

4. Plan upravljanja otapalima odredit će se prema posebnom zahtjevu, čije se ispunjenje provjerava kako slijedi:

(a) provjera sukladnosti s mogućnošću smanjenja navedenom u stavku 6. točki (a) Dodatka, s pomoću ukupne granične vrijednosti izražene u emisijama otapala po jedinici proizvoda, ili kako je drukčije navedeno u Dodatku:

(i) kod svih aktivnosti pri kojima se koristi mogućnost smanjenja iz stavka 6. točke (a) Dodatka plan upravljanja otapalima trebalo bi primijeniti jednom godišnje radi utvrđivanja potrošnje. Potrošnja se može izračunati sljedećom jednadžbom:

$$C = I1 - O8$$

Istodobno bi trebalo utvrditi krute tvari u premazima kako bi se za svaku godinu izvela godišnja referentna emisija i ciljna emisija;

(ii) kod procjene sukladnosti s ukupnom graničnom vrijednošću izraženom u emisijama otapala po jedinici proizvoda ili kako je drukčije navedeno u Dodatku, plan upravljanja otapalima trebalo bi primijeniti jednom godišnje radi utvrđivanja emisije HOS-ova. Emisije HOS-ova mogu se izračunati sljedećom jednadžbom:

$$E = F + O1$$

Pri čemu je F fugitivna emisija HOS-a prema definiciji iz podstavka (b) alineje i. u nastavku. Iznos emisije trebalo bi zatim podijeliti odgovarajućim parametrom proizvoda;

(b) utvrđivanje fugitivnih emisija HOS-ova za usporedbu s vrijednostima fugitivnih emisija iz Dodatka:

(i) metodologija: Fugitivna emisija HOS-a može se izračunati s pomoću sljedeće jednadžbe:

$$F = I1 - O1 - O5 - O6 - O7 - O8$$

ili

$$F = O2 + O3 + O4 + O9$$

Ta se količina može utvrditi izravnim mjerenjem količina. Može se izračunati i drugim načinima, na primjer s pomoću učinkovitosti zadržavanja emisija u postupku. Vrijednost fugitivne emisije izražava se kao dio unosa, koji se može izračunati s pomoću sljedeće jednadžbe:

$$I = I1 + I2;$$

(ii) Učestalost: Fugitivne emisije HOS-ova mogu se utvrditi s pomoću kratkog, ali sveobuhvatnog niza mjerenja. Postupak nije potrebno ponavljati dok ne dođe do modifikacije opreme.

T. Dodatak VII.

Dodatak VII. zamjenjuje se kako slijedi:

Rokovi na temelju članka 3.

1. Rokovi za primjenu graničnih vrijednosti iz članka 3. stavaka 2. i 3. jesu:

(a) za nove stacionarne izvore, godina dana od datuma stupanja ovog Protokola na snagu za dotičnu stranku; i

(b) za postojeće stacionarne izvore, godina dana od datuma stupanja ovog Protokola na snagu za dotičnu stranku ili 31. prosinca 2020., ovisno o tome što nastupi kasnije.

2. Rok za primjenu graničnih vrijednosti za goriva i nove pokretne izvore iz članka 3. stavka 5. jest datum stupanja na snagu ovog Protokola za dotičnu stranku ili datumi povezani s mjerama utvrđenima Dodatkom VIII., ovisno o tome što nastupi kasnije.

3. Rok za primjenu graničnih vrijednosti HOS-ova u proizvodima iz članka 3. stavka 7. jest jedna godina od datuma stupanja na snagu ovog Protokola za dotičnu stranku.

4. Neovisno o stavcima 1., 2. i 3., ali u skladu sa stavkom 5., stranka Konvencije koja postane stranka ovog Protokola između 1. siječnja 2013. i 31. prosinca 2019. može nakon ratifikacije, prihvata, odobrenja ovog Protokola ili pristupanja ovom Protokolu, izjaviti da će produljiti bilo koji rok ili sve rokove za primjenu graničnih vrijednosti iz članka 3. stavaka 2., 3., 5. i 7. kako slijedi:

(a) za postojeće stacionarne izvore do petnaest godina od datuma stupanja ovog Protokola na snagu za dotičnu stranku;

(b) za goriva i nove pokretne do pet godina od datuma stupanja ovog Protokola na snagu za dotičnu stranku; i

(c) za HOS-ove u proizvodima do pet godina od datuma stupanja ovog Protokola na snagu za dotičnu stranku.

5. Stranka koja je odabrala u skladu s člankom 3.a ovog Protokola u pogledu Dodatka VI. i/ili VIII. ne mora dati ni izjavu u skladu sa stavkom 4. koja se primjenjuje na isti Dodatak."

U. Dodatak VIII.

Dodatak VIII. zamjenjuje se sljedećim:

Granične vrijednosti za goriva i nove pokretne izvore

Uvod

1. Odjeljak A primjenjuje se na stranke osim Kanade i Sjedinjenih Američkih Država, odjeljak B odnosi se na Kanadu, a odjeljak C na Sjedinjene Američke Države.

2. Ovim se Dodatkom utvrđuju granične vrijednosti za NOx, izražene kao ekvivalenti dušikova dioksida, za ugljikovodike, od kojih su većina hlapivi organski spojevi, za ugljikov monoksid (CO), za čestice, kao i specifikacije u pogledu zaštite okoliša za goriva za vozila na tržištu.

3. Rokovi za primjenu graničnih vrijednosti iz ovog Dodatka utvrđeni su Dodatkom VII.

A. Stranke osim Kanade i Sjedinjenih Američkih Država

Osobni automobili i laka teretna vozila

4. Granične vrijednosti za motorna vozila s najmanje četiri kotača za prijevoz putnika (kategorija M) i roba (kategorija N) navedene su u tablici 1.

Teška teretna vozila

5. Granične vrijednosti za motore teških teretnih vozila navedene su u tablicama 2. i 3., ovisno o primjenjivim ispitnim postupcima.

Kompresijsko paljenje (CI) i paljenje putem svjećice (SI) necestovnih vozila i strojeva

6. Granične vrijednosti za motore poljoprivrednih i šumskih vučnih vozila i ostalih necestovnih vozila/strojeva navedene su u tablicama od 4. do 6.

7. Granične vrijednosti za lokomotive i motorne vlakove navedene su u tablicama 7. i 8.

8. Granične vrijednosti za plovila na unutarnjim plovnim putovima navedene su u tablici 9.

9. Granične vrijednosti za rekreacijska plovila navedene su u tablici 10.

Motocikli i mopedi

10. Granične vrijednosti za motocikle i mopede navedene su u tablicama 11. i 12.

Kvaliteta goriva

11. Specifikacije u pogledu zaštite okoliša za benzin i dizel navedene su u tablicama 13. i 14.

Tablica 1.

Granične vrijednosti za osobne automobile i laka vozila

				Granične vrijednosti [a]													
			Referentna masa (RW)	*Ugljikov-monoksid*		*Ukupno ugljikovodici*		*NMHOS*		*Dušikovi oksidi*		*Smjesa ugljikovodika i dušikovih oksida*		*Čestice*		*Broj čestica* [a] *(P)*	
			(kg)	*L1 (g/km)*		*L2 (g/km)*		*L3 (g/km)*		*L4 (g/km)*		*L2 + L4 (g/km)*		*L5 (g/km)*		*L6(#/km)*	
Kategorija		*Klasa, početak primjene* *		*Benzin*	*Dizel*	*Benzin*	*Dizel*	*Benzin*	*Dizel*	*Benzin*	*Dizel*	*Benzin*	*Dizel*	*Benzin*	*Dizel*	*Benzin*	*Dizel*
Euro 5	M [b]	1.1.2014	Sve	1,0	0,50	0,10	—	0,068	—	0,06	0,18	—	0,23	0,0050	0,0050	—	$6,0 \times 10^{11}$
	N_1 [c]	I., 1.1.2014.	RW 1305	1,0	0,50	0,10	—	0,068	—	0,06	0,18	—	0,23	0,0050	0,0050	—	$6,0 \times 10^{11}$
		II., 1.1.2014.	1305 < RW ≤ 1760	1,81	0,63	0,13	—	0,090	—	0,075	0,235	—	0,295	0,0050	0,0050	—	$6,0 \times 10^{11}$
		III., 1.1.2014.	1760 < RW	2,27	0,74	0,16	—	0,108	—	0,082	0,28	—	0,35	0,0050	0,0050	—	$6,0 \times 10^{11}$
	N_2	1.1.2014.		2,27	0,74	0,16	—	0,108	—	0,082	0,28	—	0,35	0,0050	0,0050	—	$6,0 \times 10^{11}$
Euro 6	M [b]	1.9.2015.	Sve	1,0	0,50	0,10	—	0,068	—	0,06	0,08	—	0,17	0,0045	0,0045	$6,0 \times 10^{11}$	$6,0 \times 10^{11}$
	N_1 [c]	I, 1.9.2015	RW ≤ 1305	1,0	0,50	0,10	—	0,068	—	0,06	0,08	—	0,17	0,0045	0,0045	$6,0 \times 10^{11}$	$6,0 \times 10^{11}$
		II., 1.9.2016.	1305< RW≤1760	1,81	0,63	0,13	—	0,090	—	0,075	0,105	—	0,195	0,0045	0,0045	$6,0 \times 10^{11}$	$6,0 \times 10^{11}$
		III., 1.9.2016.	1760 < RW	2,27	0,74	0,16	—	0,108	—	0,082	0,125	—	0,215	0,0045	0,0045	$6,0 \times 10^{11}$	$6,0 \times 10^{11}$
	N_2	1.9.2016.		2,27	0,74	0,16	—	0,108	—	0,082	0,125	—	0,215	0,0045	0,0045	$6,0 \times 10^{11}$	$6,0 \times 10^{11}$

* Registracija, prodaja ili početak uporabe novih vozila koji nisu u skladu s odgovarajućim graničnim vrijednostima odbija se od datuma navedenih u stupcu.

[a] Test prema NEDC-u.

[b] Osim vozila čija masa premašuje 2 500 kg

[c] I ona vozila kategorije M koja su navedena u napomeni b.

Tablica 2.

Granične vrijednosti za teška teretna vozila – test s ustaljenim uvjetima i test s dinamičkim opterećenjem

	*Datum primjene**	*Ugljikov monoksid (g/kWh)*	*Ugljikovodici (g/kWh)*	*Ukupno ugljikovodici (g/kWh)*	*Dušikovi oksidi (g/kWh)*	*Čestice (g/kWh)*	*Dim* (m^{-1})
B2 („EURO V') [a]	1.10.2009.	1,5	0,46	—	2,0	0,02	0,5
„EURO VI'[b]	31.12.2013.	1,5	—	0,13	0,40	0,010	—

a Test prema Europskom testu s ustaljenim uvjetima (ESC) i Europskom testu s dinamičkim opterećenjem (ELR).
b Test prema globalnim ustaljenim uvjetima velikog opterećenja (WHSC).

Tablica 3.

Granične vrijednosti za teška teretna vozila – test s prijelaznim uvjetima

	*Datum primjene**	*Ugljikov-monoksid (g/kWh)*	*Ukupno ugljikovodici (g/kWh)*	*Nemetanski ugljikovodici (g/kWh)*	*Metan*[a] *(g/kWh)*	*Dušikovi oksidi (g/kWh*	*Čestice (g/kWh)*[b]
B2 („EURO V') [c]	1.10.2009.	4,0	—	0,55	1,1	2,0	0,030
„EURO VI' (CI) [d]	31.12.2013.	4,0	0,160	—	—	0,46	0,010
„EURO VI' (PI) [d]	31.12.2013.	4,0	—	0,160	0,50	0,46	0,010

Napomena: PI = vanjski izvor paljenja. CI = kompresijsko paljenje.
* Registracija, prodaja ili početak uporabe novih vozila koja nisu u skladu s odgovarajućim graničnim vrijednostima odbija se od datuma navedenih u stupcu.
[a] Samo za motore na zemni plin.
[b] Nije primjenjivo na plinske motore na stupnju B2.
[d] Test prema prijelaznim uvjetima velikog opterećenja (WHTC).

Tablica 4.

Granične vrijednosti za dizelske motore za necestovne pokretne strojeve, poljoprivredne i šumarske traktore (stupanj III.B)

Neto snaga (P) (kW)	*Datum primjene**	*Ugljikov monoksid (g/kWh)*	*Ugljikovodici (g/kWh)*	*Dušikovi oksidi (g/kWh)*	*Čestice (g/kWh)*
$130 \leq P \leq 560$	31.12.2010.	3,5	0,19	2,0	0,025
$75 \leq P < 130$	31.12.2011.	5,0	0,19	3,3	0,025
$56 \leq P < 75$	31.12.2011.	5,0	0,19	3,3	0,025
$37 \leq P < 56$	31.12.2012.	5,0	4,7[a]	4,7[a]	0,025

* Stupanjem na snagu od navedenog datuma i s izuzetkom strojeva i motora namijenjenih izvozu u zemlje koje nisu stranke ovog Protokola, stranke dopuštaju registraciju, prema potrebi, i stavljanje na tržište novih motora bez obzira na to jesu li ugrađeni u strojeve ili ne, samo ako su u skladu s graničnim vrijednostima utvrđenima ovom tablicom.
[a] Napomena urednika: Ovaj iznos predstavlja zbroj ugljikovodika i dušikovih oksida te je naveden u konačnom odobrenom tekstu kao jedan iznos u spojenoj ćeliji u tablici. Budući da se u ovom tekstu ne nalaze tablice s linijama koje dijele ćelije, iznos se ponavlja u svakom stupcu radi jasnoće.

Tablica 5.

Granične vrijednosti za dizelske motore za necestovne pokretne strojeve, poljoprivredne i šumarske traktore (stupanj IV.)

Neto snaga (P) (kW)	*Datum primjene* *	*Ugljikov monoksid (g/kWh)*	*Ugljikovodici (g/kWh)*	*Dušikovi oksidi (g/kWh)*	*Čestice (g/kWh)*
$130 \leq P \leq 560$	31.12.2013.	3,5	0,19	0,4	0,025
$56 \leq P < 130$	31.12.2014.	5,0	0,19	0,4	0,025

* Stupanjem na snagu od navedenog datuma i s izuzetkom strojeva i motora namijenjenih izvozu u zemlje koje nisu stranke ovog Protokola, stranke dopuštaju registraciju, prema potrebi, i stavljanje na tržište novih motora bez obzira na to jesu li ugrađeni u strojeve ili ne, samo ako su u skladu s graničnim vrijednostima utvrđenima ovom tablicom.

Tablica 6.

Granične vrijednosti za motore na paljenje s pomoću svjećica za necestovne pokretne strojeve

Ručni motori		
Pomak (cm^3)	*Ugljikov monoksid (g/kWh)*	*Zbroj ugljikovodika i dušikovih oksida (g/kWh)*[a]
Pomak < 20	805	50
20 ≤ pomak < 50	805	50
Pomak ≥ 50	603	72
Motori koji se ne drže u ruci		
Pomak (cm^3)	*Ugljikov monoksid (g/kWh)*	*Zbroj ugljikovodika i dušikovih oksida (g/kWh)*
Pomak < 66	610	50
66 ≤ pomak < 100	610	40
100 ≤ pomak < 225	610	16,1
Pomak ≥ 225	610	12,1

Napomena: S izuzetkom strojeva i motora namijenjenih izvozu u zemlje koje nisu stranke ovog Protokola, stranke dopuštaju registraciju, prema potrebi, i stavljanje na tržište novih motora bez obzira na to jesu li ugrađeni u strojeve ili ne, samo ako su u skladu s graničnim vrijednostima utvrđenima ovom tablicom.

[a] Emisije NOx ni za jednu klasu motora ne smiju premašivati 10 g/kWh.

Tablica 7.

Granične vrijednosti za motore za pogon lokomotiva

Neto snaga (P) (kW)	*Ugljikov monoksid (g/kWh)*	*Ugljikovodici (g/kWh)*	*Dušikovi oksidi (g/kWh)*	*Čestice (g/kWh)*
130 < P	3,5	0,19	2,0	0,025

Napomena: S izuzetkom strojeva i motora namijenjenih izvozu u zemlje koje nisu stranke ovog Protokola, stranke dopuštaju registraciju, prema potrebi, i stavljanje na tržište novih motora bez obzira na

to jesu li ugrađeni u strojeve ili ne, samo ako su u skladu s graničnim vrijednostima utvrđenima ovom tablicom.

Tablica 8.

Granične vrijednosti za motore za pogon motornih vlakova

Neto snaga (P) (kW)	*Ugljikov monoksid (g/kWh)*	*Zbroj ugljikovodika i dušikovih oksida (g/kWh)*	*Čestice (g/kWh)*
130 < P	*3,5*	*4,0*	*0,025*

Tablica 9.

Granične vrijednosti za pogon plovila na unutarnjim plovnim putovima

Pomak (litre po cilindru/kW)	*Ugljikov monoksid (g/kWh)*	*Zbroj ugljikovodika i dušikovih oksida (g/kWh)*	*Čestice (g/kWh)*
Pomak < 0,9	5,0	7,5	0,4
Snaga ≥ 37 kW			
0,9 ≤ pomak < 1,2	5,0	7,2	0,3
1,2 ≤ pomak < 2,5	5,0	7,2	0,2
2,5 ≤ pomak < 5,0	5,0	7,2	0,2
5,0 ≤ pomak < 15	5,0	7,8	0,27
15 ≤ pomak < 20	5,0	8,7	0,5
Snaga < 3 300 kW			
15 ≤ pomak < 20	5,0	9,8	0,5
Snaga > 3 300 kW			
20 ≤ pomak < 25	5,0	9,8	0,5
25 ≤ pomak < 30	5,0	11,0	0,5

Napomena: S izuzetkom strojeva i motora namijenjenih izvozu u zemlje koje nisu stranke ovog Protokola, stranke dopuštaju registraciju, prema potrebi, i stavljanje na tržište novih motora bez obzira na to jesu li ugrađeni u strojeve ili ne, samo ako su u skladu s graničnim vrijednostima utvrđenima ovom tablicom.

Tablica 10.

Granične vrijednosti za motore u rekreacijskim plovilima

	CO (g/kWh) $CO = A + B/P^n{}_N$			*Ugljikovodici (HC) (g/kWh)* $HC = A + B/P^n{}_N$ [a]			NO_x	Čestice
Tip motora	*A*	*B*	*n*	*A*	B	*n*	*g/kWh*	*(g/kWh)*

dvotaktni	150	600	1	30	100	0,75	10	nije prim.
četverotaktni	150	600	1	6	50	0,75	15	nije prim.
s kompresijskim paljenjem	5	0	0	1,5	2	0,5	9,8	1

Kratica: nije prim. = nije primjenjivo.

Napomena: S izuzetkom strojeva i motora namijenjenih izvozu u zemlje koje nisu stranke ovog Protokola, stranke dopuštaju registraciju, prema potrebi, i stavljanje na tržište novih motora bez obzira na to jesu li ugrađeni u strojeve ili ne, samo ako su u skladu s graničnim vrijednostima utvrđenima ovom tablicom.

[a] Kad su A, B i n konstante, a PN je snaga motora u kW, emisije se mjere u skladu s usklađenim normama.

Tablica 11.

Granične vrijednosti za motocikle (> 50 cm³; > 45 km/h)

Veličina motora	*Granične vrijednosti*
Motocikl < 150cc	HC = 0,8 g/km
	NO_x = 0,15 g/km
Motocikl > 150cc	HC = 0,3 g/km
	NO_x = 0,15 g/km

Napomena: S izuzetkom vozila namijenjenih izvozu u zemlje koje nisu stranke ovog Protokola, stranke dopuštaju registraciju, prema potrebi, i stavljanje na tržište samo ako su u skladu s graničnim vrijednostima utvrđenima ovom tablicom.

Tablica 12.

Granične vrijednosti za mopede (< 50 cm³; < 45 km/h)

	Granične vrijednosti	
	CO (g/km)	*HC + NO_x (g/km)*
II.	1,0 [a]	1,2

Napomena: S izuzetkom vozila namijenjenih izvozu u zemlje koje nisu stranke ovog Protokola, stranke dopuštaju registraciju, prema potrebi, i stavljanje na tržište samo ako su u skladu s graničnim vrijednostima utvrđenima ovom tablicom.

Tablica 13.

Specifikacije u pogledu zaštite okoliša za goriva na tržištu za vozila s motorima s vanjskim izvorom paljenja – vrsta: Benzin

Parametar	*Jedinica*	*Granične vrijednosti*

		Minimalno	*Maksimum*
Istraživački oktanski broj		95	—
Motorni oktanski broj		85	—
Reid tlak pare, ljetno razdoblje [a]	kPa	—	60
Destilacija:			
Isparavanje pri 100 °C	% v/v	46	—
Isparavanje pri 150 °C	% v/v	75	—
Analiza ugljikovodika:			
- olefini	% v/v	—	18,0 [b]
- aromati		—	35
- benzen		—	1
Udjel kisika	% (m/m)	—	3,7
Oksigenati:			
- metanol, moraju se dodati stabilizirajući agensi	% v/v	—	3
- etanol, mogu biti potrebni stabilizirajući agensi	% v/v	—	10
- izopropilni alkohol	% v/v	—	12
- tercbutilni alkohol	% v/v	—	15
- izobutilni alkohol	% v/v	—	15
- eteri koji sadržavaju 5 ili više atoma ugljika po molekuli	% v/v	—	22
Ostali oksigenati [c]	% v/v	—	15
Udjel sumpora	mg/kg	—	10

[a] Ljetno razdoblje počinje najkasnije 1. svibnja i ne završava prije 30. rujna. Kod stranaka s arktičkim vremenskim uvjetima ljeto počinje najkasnije 1. lipnja i ne završava prije 31. kolovoza, a Reid tlak pare (RVP) ograničen je na 70 kPa.

[b] Osim za običan bezolovni benzin (najmanji motorni oktanski broj (MON) 81 i najmanji istraživački oktanski broj (RON) 91), za koji je najviši udio olefina 21 % v/v. Tim se graničnim vrijednostima ne sprečava stavljanje na tržište stranke drugog bezolovnog benzina s nižim oktanskim brojevima od onih utvrđenih ovim dokumentom.

[c] Ostali mono-alkoholi sa završnom točkom destilacije koja nije viša od završne točke destilacije utvrđene nacionalnim specifikacijama ili, tamo gdje one ne postoje, od završne točke destilacije za motorna goriva.

Tablica 14.

Specifikacije u pogledu zaštite okoliša za goriva na tržištu za vozila s motorima s kompresijskim paljenjem – vrsta: Dizelsko gorivo

		Granične vrijednosti	
Parametar	*Jedinica*	*Minimalno*	*Maksimum*
Cetanski broj		51	—

Gustoća pri 15 °C	kg/m^3	—	845
Točka destilacije: 95 %	°C	—	360
Policiklički aromatski ugljikovodici	% (m/m)	—	8
Udjel sumpora	mg/kg	—	10

B. Kanada

12. Granične vrijednosti za nadzor emisija iz goriva i pokretnih izvora odredit će se, prema potrebi, uzimajući u obzir informacije o dostupnim tehnologijama nadzora, granične vrijednosti koje se primjenjuju u ostalim nadležnostima i dokumente u nastavku:

(a) uredbe o emisiji stakleničkih plinova putničkih automobila i lakih teretnih vozila, SOR/2010–201;

(b) uredbe o emisiji iz brodskog motora s paljenjem s pomoću svjećice, plovila i terenskih rekreacijskih vozila, SOR/2011–10;

(c) uredbe o obnovljivim gorivima, SOR/2010–189;

(d) uredbe o sprečavaju onečišćenja s brodova i za opasne kemikalije, SOR/2007–86;

(e) uredbe o emisiji iz motora s kompresijskim paljenjem terenskih vozila, SOR/2005–32;

(f) uredbe o emisiji iz motora s kompresijskim paljenjem i cestovnih vozila, SOR/2003-2;

(g) uredbe o emisiji iz malih motora s paljenjem s pomoću svjećice, za terenska vozila, SOR/2003-355;

(h) uredbe o sumporu u dizelskom gorivu, SOR/2002–254;

(i) uredbe o brzini protoka raspršivanja benzina i mješavina benzina, SOR/2000–43;

(j) uredbe o sumporu u benzinu, SOR/99-236;

(k) uredbe o benzenu u benzinu, SOR/97-493;

(l) uredbe o benzinu, SOR/90-247;

(m) federalne uredbe o tretmanu i uništenju pokretnog PCB-a, SOR/90–5;

(n) Ekološki kodeks za nadzemne i podzemne sustave spremnika za naftu i slične naftne proizvoda;

(o) Kanadske norme za benzen, faza 2;

(p) Ekološke smjernice za nadzor emisija hlapivih organskih spojeva iz nadzemnih spremnika. PN 1180;

(q) Ekološki kodeks za sakupljanje pare u mrežama za distribuciju benzina. PN 1057;

(r) Ekološki kodeks za programe nadzora i održavanja emisije iz lakih teretnih motornih vozila – 2. izdanje. PN 1293;

(s) zajedničke početne akcije za smanjenje emisija onečišćujuće tvari koje doprinose česticama i prizemnom ozonu; i

(t) Smjernice za rad i emisiju za spalionice krutog komunalnog otpada. PN 1085.

C. Sjedinjene Američke Države

13. Provedba programa nadzora emisija iz pokretnih izvora za laka teretna vozila, lake kamione, teške kamione i goriva u mjeri u kojoj se to zahtijeva odjeljcima 202(a), 202(g) i 202(h) Zakona o čistom zraku provodi se putem sljedećih propisa:

(a) Registracija goriva i dodataka gorivu – 40 C.F.R, odjeljak 79;

(b) Uredba o gorivima i dodacima gorivu – 40 C.F.R, odjeljak 80, uključujući: pododjeljak A – opće odredbe; pododjeljak B – nadzori i zabrane; pododjeljak D – reformulirani benzin; pododjeljak H – norme u pogledu sumpora u benzinu; pododjeljak I – dizelsko gorivo za motorna vozila; dizelsko gorivo za necestovna vozila, lokomotive i brodsko dizelsko gorivo te brodsko gorivo ECA; pododjeljak L – benzen u benzinu; i

(c) Nadzor emisija iz novih i postojećih cestovnih vozila i motora – 40 C.F.R, odjeljci 85 i 86.

14. Norme za necestovne motore i vozila utvrđene su sljedećim dokumentima:

(a) Norme za sumpor u gorivu za necestovne dizelske motore – 40 C.F.R, odjeljak 80, pododjeljak I;

(b) Motori zrakoplova – 40 C.F.R, odjeljak 87;

(c) Norme za emisije iz ispušnog sustava za necestovne dizelske motore – razina 2 i 3; 40 C.F.R., odjeljak 89;

(d) Necestovni motori s kompresijskim paljenjem – 40 C.F.R., odjeljci 89 i 1039;

(e) Necestovni i brodski motori s paljenjem pomoću svjećice – 40 C.F.R., odjeljci 90, 91, 1045 i 1054;

(f) Lokomotive – 40 C.F.R., odjeljci 92 i 1033;

(g) Brodski motori s kompresijskim paljenjem – 40 C.F.R., odjeljci 94 i 1042;

(h) Novi veliki necestovni motori s paljenjem s pomoću svjećice – 40 C.F.R., odjeljak 1048;

(i) Rekreacijski motori i vozila – 40 C.F.R., odjeljak 1051;

(j) Nadzor emisija isparavanjem iz nove i postojeće necestovne i stacionarne opreme – 40 C.F.R., odjeljak 1060;

(k) Postupci testiranja motora – 40 C.F.R., odjeljak 1065; i

(l) Opće odredbe o sukladnosti za necestovne programe – 40 C.F.R., odjeljak 1068."

V. Dodatak IX.

1. Zadnja rečenica stavka 6. briše se.
2. Zadnja rečenica stavka 9. briše se.
3. Napomena 1. briše se.

W. Dodatak X.

1. Dodaje se novi Dodatak X. kako slijedi:

Dodatak X.
Granične vrijednosti za emisije čestica iz stacionarnih izvora

1. Odjeljak A primjenjuje se na stranke osim Kanade i Sjedinjenih Američkih Država, odjeljak B odnosi se na Kanadu, a odjeljak C na Sjedinjene Američke Države.

A. Stranke osim Kanade i Sjedinjenih Američkih Država

2. Samo u ovom odjeljku ‚prašina' i ‚ukupne raspršene čestice' (TSP) znači masa čestica bilo kojeg oblika, strukture ili gustoće raspršena u plinovitoj fazi u uvjetima točke uzorkovanja koje se mogu prikupiti filtracijom u određenim uvjetima nakon reprezentativnog uzorkovanja plina koji treba analizirati i koje ostaju iznad filtra i na filtru nakon sušenja u određenim uvjetima.

3. Za potrebe ovog odjeljka ‚granična vrijednost emisije' (GVE) znači količina prašine i/ili TSP-a sadržana u otpadnim plinovima iz uređaja koja ne smije biti prekoračena. Osim ako je drukčije navedeno, ona se izračunava kao masa onečišćujuće tvari po volumenu otpadnog plina (izraženo u mg/m^3), s pretpostavkom normalnih uvjeta temperature i tlaka za suhi plin (volumen kod temperature od 273,15 K i tlaka 101,3 kPa). Kad je riječ o udjelu kisika u otpadnom plinu, za svaku kategoriju izvora primjenjuju su vrijednosti iz donje tablice. Razrjeđivanje radi snižavanja koncentracija onečišćujućih tvari u otpadnim plinovima nije dopušteno. Uključivanje, isključivanje i održavanje opreme je izuzeto.

4. Emisije se nadziru u svim slučajevima putem mjerenja ili izračuna kojima se ostvaruje najmanje ista preciznost. Sukladnost s graničnim vrijednostima provjerava se stalnim i povremenim mjerenjima, homologacijom tipa ili bilo kojom drugom tehnički valjanom metodom, uključujući provjerene metode izračuna. Kod stalnih mjerenja, sukladnost s graničnim vrijednostima postiže se ako potvrđeni mjesečni prosjek emisije ne premašuje GVE. Kod povremenih mjerenja ili drugih odgovarajućih postupaka utvrđivanja ili izračuna, sukladnost s GVE-ima postiže se ako srednja vrijednost odgovarajućeg broja mjerenja u reprezentativnim uvjetima ne premašuje vrijednost norme emisije. Nepreciznost metoda mjerenja može se uzeti u obzir kod provjere.

5. Nadzor odgovarajućih onečišćujućih tvari i mjerenja parametara postupka, kao i osiguranje kvalitete automatskih mjernih sustava i referentnih mjerenja za umjeravanje tih sustava provode se u skladu s normama CEN-a. Ako norme CEN-a nisu dostupne, primjenjuju se norme ISO-a, nacionalne ili međunarodne norme kojima će se osigurati dostava podataka jednake znanstvene kvalitete.

6. Posebne odredbe za postrojenja za izgaranje iz stavka 7.:

(a) Stranka se može izuzeti od obveze postupanja u skladu s GVE-ima predviđenima stavkom 7. u sljedećim slučajevima:

(i) postrojenja za izgaranje na plinsko gorivo kod kojih se druga goriva iznimno moraju koristiti zbog iznenadnog prekida opskrbe plinom trebala bi biti opremljena uređajem za pročišćavanje otpadnog plina;

(ii) kod postojećih postrojenja koja nisu u pogonu više od 17 500 radnih sati, počevši od 1. siječnja 2016. do najkasnije 31. prosinca 2023.

(b) Kad je postrojenje za izgaranje prošireno za najmanje 50 MWth, na prošireni dio koji je promijenjen primjenjuje se GVE za nove instalacije utvrđen stavkom 7. GVE se računa kao prosjek ponderiran stvarnom toplinskom snagom za postojeći i novi dio postrojenja.

(c) Stranke osiguravaju donošenje odredbi za postupke povezane s neispravnošću ili kvarom opreme za smanjivanje emisije.

(d) U slučaju postrojenja za izgaranje na više goriva kad se istovremeno koriste dva ili više goriva, GVE se utvrđuje kao ponderirani prosjek GVE-ova za pojedinačna goriva na temelju toplinske snage svakog goriva.

7. Postrojenja za izgaranje toplinske snage preko 50 MWth[3]:

Tablica 1.

Granične vrijednosti za emisije prašine iz postrojenja za izgaranje [a]

Vrsta goriva	*Toplinska snaga (MWth)*	*GVE za prašinu (mg/m³)* [b]
Kruta goriva	50–100	Nova postrojenja:
		20 (ugljen, lignit i ostala kruta goriva)
		20 (biomasa, treset)
		Postojeća postrojenja:
		30 (ugljen, lignit i ostala kruta goriva)
		30 (biomasa, treset)
	100–300	Nova postrojenja:
		20 (ugljen, lignit i ostala kruta goriva)
		20 (biomasa, treset)
		Postojeća postrojenja:
		25 (ugljen, lignit i ostala kruta goriva)
		20 (biomasa, treset)
	> 300	Nova postrojenja:
		10 (ugljen, lignit i ostala kruta goriva)
		20 (biomasa, treset

[3] Toplinska snaga postrojenja za izgaranje računa se kao zbroj snage svih jedinica spojenih na zajednički dimnjak. Pojedinačne jedinice ispod 15 MWth ne uzimaju se u obzir pri izračunu ukupne toplinske snage.

		Postojeća postrojenja: 20 (ugljen, lignit i ostala kruta goriva) 20 (biomasa, treset)
Tekuća goriva	50–100	Nova postrojenja: 20 Postojeća postrojenja: 30 (općenito) 50 (za pokretanje destilacije i pretvaranje ostataka u rafinerijama od rafiniranja sirove nafte za vlastitu potrošnju u postrojenjima za izgaranje)
Tekuća goriva	100–300	Nova postrojenja: 20 Postojeća postrojenja: 25 (općenito) 50 (za pokretanje destilacije i pretvaranje ostataka u rafinerijama od rafiniranja sirove nafte za vlastitu potrošnju u postrojenjima za izgaranje)
	> 300	Nova postrojenja: 10 Postojeća postrojenja: 20 (općenito) 50 (za pokretanje destilacije i pretvaranje ostataka u rafinerijama od rafiniranja sirove nafte za vlastitu potrošnju u postrojenjima za izgaranje)
Zemni plin	> 50	5
Ostali plinovi	> 50	10 30 (za plinove koje proizvede industrija čelika koji se mogu drugdje koristiti)

[a] Preciznije, GVE-ovi se ne primjenjuju na:

- postrojenja u kojima se proizvodi izgaranja koriste za izravno zagrijavanje, sušenje ili neki drugi oblik obrade predmeta ili materijala,
- postrojenja za naknadno izgaranje namijenjena pročišćavanju otpadnih plinova izgaranjem, koja ne funkcioniraju kao zasebna postrojenja za izgaranje,

- postrojenja za regeneraciju katalizatora za katalitičko razdavanje,
- postrojenja za pretvaranje sumporovodika u sumpor,
- reaktore koji se koriste u kemijskoj industriji,
- peći koksne baterije,
- regeneratore za visoke peći (‚cowpers'),
- kotlove za odvajanje s uređajima za proizvodnju pulpe,
- spalionice otpada, te
- postrojenja s pogonom na dizelske, benzinske i plinske motore ili turbine za izgaranje, bez obzira na gorivo koje koriste.

[b] Referentni je udjel O2 6 % za kruta goriva i 3 % za tekuća i plinovita goriva.

8. Rafinerije mineralnog ulja i plina:

Tablica 2.

Granične vrijednosti za emisije prašine iz rafinerija mineralnog ulja i plina

Izvor emisije	*GVE za prašinu (mg/m^3)*
Generatori FCC	50

9. Proizvodnja cementnog klinkera:

Tablica 3.

Granične vrijednosti emisija prašine iz proizvodnje cementa [a]

	GVE za prašinu (mg/m^3)
Postrojenja za cement, peći, mlinovi i uređaji za hlađenje klinkera	20

[a] Postrojenja za proizvodnju cementnog klinkera u rotacijskim pećima kapaciteta preko 500 Mg dnevno ili u drugim pećima kapaciteta preko 50 Mg dnevno. Referentni je udjel kisika 10 %.

10. Proizvodnja vapna:

Tablica 4.

Granične vrijednosti emisija prašine iz proizvodnje vapna [a]

	GVE za prašinu (mg/m^3)

Pokretanje peći za vapno	20 [b]

[a] Postrojenja za proizvodnju vapna kapaciteta 50 Mg dnevno ili više. Time su obuhvaćene i peći za vapno u ostalim industrijskim postupcima, uz iznimku industrije pulpe (vidjeti tablicu 9.). Referentni je udjel kisika 11 %.
[b] Kad je otpor prašine visok, GVE može biti viši, do 30 mg/m3.

11. Proizvodnja i prerada metala:

Tablica 5.

Granične vrijednosti za emisije prašine iz primarne proizvodnje željeza i čelika

Aktivnost i granična vrijednost kapaciteta	*GVE za prašinu (mg/m³)*
Postrojenje za sinteriranje	50
Postrojenje za peletiranje	20 za drobljenje, mljevenje ili sušenje 15 za sve ostale korake postupka
Visoka peć: Vruće peći (> 2,5 t/sat)	10
Osnovna proizvodnja čelika oksidacijom i lijevanje (> 2,5 t/sat)	30
Proizvodnja čelika u električnim pećima i lijevanje(> 2,5 t/sat)	15 (postojeća) 5 (nova)

Tablica 6.

Granične vrijednosti emisija prašine iz ljevaonica željeza

Aktivnost i granična vrijednost kapaciteta	*GVE za prašinu (mg/m³)*
Ljevaonice željeza (> 20 t/dan): - sve peći (peći s kupolom, indukcijske i rotacijske) - svi kalupi (izgubljeni, stalni)	20
Vruće i hladno valjanje	20 50 kad se vrećasti filtar ne može primijeniti zbog prisutnosti mokrih dimova

Tablica 7.

Granične vrijednosti za emisije prašine iz proizvodnje i prerade obojenih metala

	GVE za prašinu (mg/m^3) (dnevno)
Prerada obojenih metala	20

12. Proizvodnja stakla:

Tablica 8.

Granične vrijednosti emisija prašine iz proizvodnje stakla [a]

	GVE za prašinu (mg/m³)
Nova postrojenja	20
Postojeća postrojenja	30

[a] Postrojenja za proizvodnju stakla ili staklenih vlakana kapaciteta 20 Mg dnevno ili više. Koncentracije se odnose na suhe otpadne plinove pri 8 % volumena kisika (kontinuirano taljenje), 13 % volumena kisika (prekinuto taljenje).

13. Proizvodnja pulpe:

Tablica 9.

Granične vrijednosti emisija prašine iz proizvodnje pulpe

	GVE za prašinu (mg/m^3) (godišnji prosjeci)
Pomoćni kotao	40 na tekuća goriva (pri 3 % udjela kisika) 30 na kruta goriva (pri 6 % udjela kisika)
Kotao za odvajanje i peć za vapno	50

14. Spaljivanje otpada:

Tablica 10.

Granične vrijednosti emisija prašine iz spaljivanja otpada

	GVE za prašinu (mg/m^3)
Spalionice komunalnog otpada (> 3 Mg/sat)	10
Spalionice opasnog i medicinskog otpada (> 1 Mg/sat)	10

Napomena: Referentni kisik: suha osnova, 11 %.

15. Proizvodnja titanijevog dioksida:

Tablica 11.

Granične vrijednosti za emisije prašine iz proizvodnje titanijevog dioksida

	GVE za prašinu (mg/m^3)
Postupak sulfata, ukupna emisija	50
Postupak klorida, ukupna emisija	50

Napomena: Za manje izvore emisije unutar postrojenja može se primijeniti GVE od 150 mg/m^3.

16. Postrojenja za izgaranje toplinske snage < 50 MWth:

Ovaj stavak ima karakter preporuke i njime se opisuju mjere koje se mogu poduzeti ako ih stranka smatra tehnički i ekonomski izvedivima pri nadzoru čestica:

(a) rezidencijalna postrojenja za izgaranje toplinske snage < 500 kWth:

(i) emisije iz novih rezidencijalnih peći i kotlova za izgaranje toplinske snage < 500 kWth mogu se smanjiti primjenom:

(aa) normama u pogledu proizvoda prema opisu iz normi CEN-a (npr. EN 303–5) i jednakovrijednim normama u pogledu proizvoda u Sjedinjenim Državama i Kanadi. Zemlje koje primjenjuju takve norme u pogledu proizvoda mogu odrediti dodatne nacionalne zahtjeve posebno uzimajući u obzir doprinos emisija kondenzirajućih organskih spojeva stvaranju čestica u okolini; ili

(bb) ekoloških oznaka kojima se utvrđuju kriteriji učinkovitosti koji su općenito stroži od minimalnih zahtjeva u pogledu učinkovitosti normi EN za proizvode ili nacionalnih propisa.

Tablica 12.

Preporučene granične vrijednosti za emisije prašine iz novih postrojenja na kruta goriva toplinske snage < 500 kWth koje treba koristiti uz norme za proizvode

	Prašina (mg/m^3)
Otvoreni/zatvoreni kamini i peći na drva	75
Kotlovi na cjepanice (sa spremnikom topline)	40
Peći i kotlovi na pelete	50
Peći i kotlovi na ostala kruta goriva osim drva	50
Automatska postrojenja za izgaranje	50

Napomena: Referentni udjel O_2: 13 %.

(ii) emisije iz postojećih rezidencijalnih peći i kotlova mogu se smanjiti sljedećim primarnim mjerama:

(aa) informiranje javnosti i programi podizanja svijesti o:

- pravilnom funkcioniranju peći i kotlova,
- korištenju isključivo netretiranog drva,
- pravilnoj obradi drva u pogledu udjela vlage;

(bb) pokretanje programa za promicanje zamjene najstarijih postojećih kotlova i peći novim aparatima; ili

(cc) uvođenje obveze zamjene ili nadogradnje starih aparata;

(b) nerezidencijalna postrojenja za izgaranje toplinske snage od 100 kWth do 1 MWth:

Tablica 13.

Predložene granične vrijednosti za emisije prašine iz kotlova i grijača toplinske snage od 100 kWth do 1 MWth.

		Prašina (mg/m^3)
Kruta goriva 100–500 kWth	Nova postrojenja	50
	Postojeća postrojenja	150
Kruta goriva 500 kWth–1 MWth	Nova postrojenja	50
	Postojeća postrojenja	150

Napomena: Referentni udjel O_2: drvo, ostala kruta biomasa i treset: 13 %; ugljen, lignit i ostala kruta fosilna goriva: 6 %.

(c) postrojenja za izgaranje toplinske snage > 1–50 MWth:

Tablica 14.

Predložene granične vrijednosti za emisije prašine iz kotlova i grijača toplinske snage od 1 MWth do 50 MWth.

		Prašina (mg/m^3)
Kruta goriva > 1–5 MWth	Nova postrojenja	20
	Postojeća postrojenja	50
Kruta goriva > 5–50 MWth	Nova postrojenja	20
	Postojeća postrojenja	30

Tekuća goriva > 1–5 MWth	Nova postrojenja	20
	Postojeća postrojenja	50
Tekuća goriva > 5–50 MWth	Nova postrojenja	20
	Postojeća postrojenja	30

Napomena: Referentni udjel O_2: drvo, ostala kruta biomasa i treset: 11 %; ugljen, lignit i ostala kruta fosilna goriva: 6 %; tekuća goriva, uključujući tekuća bio-goriva: 3 %

B. Kanada

17. Granične vrijednosti za nadzor emisija čestica odredit će se za stacionarne izvore, prema potrebi, uzimajući u obzir informacije o dostupnim tehnologijama nadzora, granične vrijednosti koje se primjenjuju u ostalim nadležnostima i dokumente navedene u podstavcima od (a) do (h) u nastavku. Granične se vrijednosti mogu izraziti u česticama ili ukupnim česticama (TPM). U ovom kontekstu TPM znači svaka čestica čiji je aerodinamički promjer manji od 100 μm:

(a) uredbe o ispuštanju iz talionica sekundarnog olova, SOR/91-155;

(b) Ekološki kodeks za talionice i rafinerije običnih metala;

(c) smjernice za emisije iz novih izvora kod proizvodnje toplinske energije;

(d) Ekološki kodeks za integrirane čeličane (EPS 1/MM/7);

(e) Ekološki kodeks za neintegrirane čeličane (EPS 1/MM/8);

(f) smjernice za emisije iz cementnih peći. PN 1284;

(g) zajedničke početne akcije za smanjenje emisija onečišćujuće tvari koje doprinose česticama i prizemnom ozonu; i

(h) ispitivanje izvedbe uređaja za grijanje na kruto gorivo, Kanadsko udruženje za norme, B415. 1-10.

C. Sjedinjene Američke Države

18. Granične vrijednosti za nadzor emisija čestica iz stacionarnih izvora u sljedećim kategorijama stacionarnih izvora i izvori na koje se one primjenjuju, navode se u sljedećim dokumentima:

(a) čeličane: peći s električnim lukom – 40 C.F.R., odjeljak 60, pododjeljci AA i AAa;

(b) male spalionice komunalnog otpada – 40 C.F.R. odjeljak 60, pododjeljak AAAA;

(c) tvornice čvrste pulpe – 40 C.F.R., odjeljak 60, pododjeljak BB;

(d) proizvodnja stakla – 40 C.F.R., odjeljak 60, pododjeljak CC;

(e) jedinice za proizvodnju pare za električna postrojenja – 40 C.F.R., odjeljak 60, pododjeljci D i Da;

(f) jedinice za proizvodnju pare za industrijske, trgovačke i institucionalne potrebe – 40 C.F.R., odjeljak 60, pododjeljci Db i Dc;

(g) silosi – 40 C.F.R., odjeljak 60, pododjeljak DD;

(h) spalionice komunalnog otpada – 40 C.F.R., odjeljak 60, pododjeljci E, Ea i Eb;

(i) spalionice bolničkog/medicinskog/infektivnog otpada – 40 C.F.R., odjeljak 60, pododjeljak Ec;

(j) cement Portland – 40 C.F.R., odjeljak 60, pododjeljak F;

(k) proizvodnja vapna – 40 C.F.R., odjeljak 60, pododjeljak HH;

(l) postrojenja za proizvodnju asfalta – 40 C.F.R. odjeljak 60, pododjeljak I;

(m) stacionarni motori s unutrašnjim sagorijevanjem: kompresijsko paljenje – 40 C.F.R., odjeljak 60, pododjeljak IIII;

(n) naftne rafinerije – 40 C.F.R., odjeljak 60, pododjeljci J i Ja;

(o) talionice sekundarnog olova – 40 C.F.R., odjeljak 60, pododjeljak L;

(p) obrada kovinskih ruda – 40 C.F.R., odjeljak 60, pododjeljak LL;

(q) sekundarni mjed i bronca – 40 C.F.R., odjeljak 60, pododjeljak M;

(r) peći za osnovni postupak oksidacije – 40 C.F.R., odjeljak 60, pododjeljak N;

(s) postrojenja za osnovnu proizvodnju čelika – 40 C.F.R., odjeljak 60, pododjeljak Na;

(t) prerada sirovog fosfata – 40 C.F.R., odjeljak 60, pododjeljak NN;

(u) spalionica postrojenja za pročišćavanje otpadnih voda – 40 C.F.R., odjeljak 60, pododjeljak O;

(v) postrojenja za preradu nemetalnih ruda – 40 C.F.R., odjeljak 60, pododjeljak OOO;

(w) talionice bakrene rude – 40 C.F.R., odjeljak 60, pododjeljak P;

(x) proizvodnja amonijevog sulfata – 40 C.F.R., odjeljak 60, pododjeljak PP;

(y) izolacija od staklene vune – 40 C.F.R., odjeljak 60, pododjeljak PPP;

(z) talionice cinkove rude – 40 C.F.R., odjeljak 60, pododjeljak Q;

(aa) talionice olovne rude – 40 C.F.R., odjeljak 60, pododjeljak R;

(bb) postrojenja za redukciju aluminijeve rude – 40 C.F.R., odjeljak 60, pododjeljak S;

(cc) proizvodnja fosfatnih gnojiva – 40 C.F.R., odjeljak 60, pododjeljci T, U, V, W, X;

(dd) prerada asfalta i proizvodnja asfaltnih krovnih obloga – 40 C.F.R., odjeljak 60, pododjeljak UU;

(ee) kalcinatori i sušilice u rudarstvu – 40 C.F.R., odjeljak 60, pododjeljak UUU;

(ff) postrojenja za pripremu ugljena – 40 C.F.R., odjeljak 60, pododjeljak Y;

(gg) postrojenja za proizvodnju ferolegura – 40 C.F.R., odjeljak 60, pododjeljak Z;

(hh) kućni kamini na drvo – 40 C.F.R., odjeljak 60, pododjeljak AAA;

(ii) male spalionice komunalnog otpada (nakon 30.11.1999.) – 40 C.F.R. odjeljak 60, pododjeljak AAAA;

(jj) male spalionice komunalnog otpada (prije 30.11.1999.) – 40 C.F.R. odjeljak 60, pododjeljak BBBB;

(kk) jedinice za spaljivanje ostalog krutog otpada (nakon 12.9.2004.) – 40 C.F.R. odjeljak 60, pododjeljak EEEE;

(ll) jedinice za spaljivanje ostalog krutog otpada (prije 12.9.2004.) – 40 C.F.R. odjeljak 60, pododjeljak FFFF;

(mm) stacionarni motori s unutarnjim sagorijevanjem s kompresijskim paljenjem – 40 C.F.R., odjeljak 60, pododjeljak IIII; i

(nn) postrojenja za proizvodnju olovnih akumulatora – 40 C.F.R., odjeljak 60, pododjeljak KK.

19. Granične vrijednosti za nadzor emisija čestica iz izvora koji podliježu Nacionalnim normama u pogledu emisije za opasne tvari koje onečišćuju zrak:

(a) baterije koksnih peći – 40 C.F.R., odjeljak 63, pododjeljak L;

(b) galvaniziranje kroma (velik i područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak N;

(c) talionice sekundarnog olova – 40 C.F.R., odjeljak 63, pododjeljak X;

(d) postrojenja za proizvodnju fosforne kiseline – 40 C.F.R., odjeljak 63, pododjeljak AA;

(e) postrojenja za proizvodnju fosfatnih gnojiva – 40 C.F.R., odjeljak 63, pododjeljak BB;

(f) proizvodnja magnetnih traka – 40 C.F.R., odjeljak 63, pododjeljak EE;

(g) aluminijeva ruda – 40 C.F.R., odjeljak 63, pododjeljak L;

(h) pulpa i papir II (sagorijevanje) – C.F.R., odjeljak 63, pododjeljak MM;

(i) proizvodnja mineralne vune – 40 C.F.R., odjeljak 63, pododjeljak DDD;

(j) spalionice opasnog otpada – 40 C.F.R., odjeljak 63, pododjeljak EEE;

(k) proizvodnja cementa Portland – 40 C.F.R., odjeljak 63, pododjeljak LLL;

(l) proizvodnja staklene vune – 40 C.F.R., odjeljak 63, pododjeljak NNN;

(m) bakrena ruda – 40 C.F.R., odjeljak 63, pododjeljak QQQ;

(n) sekundarni aluminij – 40 C.F.R., odjeljak 63, pododjeljak RRR;

(o) taljenje olovne rude – 40 C.F.R., odjeljak 63, pododjeljak TTT;

(p) rafinerije nafte – 40 C.F.R., odjeljak 63, pododjeljak UUU;

(q) proizvodnja ferolegura – 40 C.F.R., odjeljak 63, pododjeljak XXX;

(r) proizvodnja vapna – 40 C.F.R., odjeljak 63, pododjeljak AAAAA;

(s) koksne peći: potiskivanje koksa, hlađenje i povezivanje baterija– 40 C.F.R., odjeljak 63, pododjeljak CCCCC;

(t) ljevaonice čelika i željeza – 40 C.F.R., odjeljak 63, pododjeljak EEEEE;

(u) integrirana proizvodnja željeza i čelika – 40 C.F.R., odjeljak 63, pododjeljak FFFFF;

(v) sanacija lokacije – 40 C.F.R., odjeljak 63, pododjeljak GGGGG;

(w) proizvodnja raznih premaza – 40 C.F.R., odjeljak 63, pododjeljak HHHHH;

(x) prerada asfalta i proizvodnja krovnih obloga – 40 C.F.R., odjeljak 63, pododjeljak LLLLL;

(y) prerada željezne rude takonita – 40 C.F.R., odjeljak 63, pododjeljak RRRRR;

(z) (z) proizvodnja vatrostalnih proizvoda – 40 C.F.R., odjeljak 63, pododjeljak SSSSS;

(aa) rafiniranje magnezijeve rude – 40 C.F.R., odjeljak 63, pododjeljak TTTTT;

(bb) postrojenja s elektrolučnim pećima za proizvodnju čelika – 40 C.F.R., odjeljak 63, pododjeljak YYYYY;

(cc) ljevaonice čelika i željeza – 40 C.F.R., odjeljak 63, pododjeljak ZZZZZ;

(dd) područni izvori taljenja bakrene rude – 40 C.F.R., odjeljak 63, pododjeljak EEEEEE;

(ee) područni izvori taljenja sekundarnog bakra – 40 C.F.R., odjeljak 63, pododjeljak FFFFFF;

(ff) područni izvori obojenih metala: cink, kadmij, berilij – 40 C.F.R., odjeljak 63, pododjeljak GGGGGG;

(gg) proizvodnja olovnih akumulatora (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak PPPPPP;

(hh) proizvodnja stakla (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak SSSSSS;

(ii) talionica sekundarnih obojenih metala (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak TTTTTT;

(jj) proizvodnja kemikalija (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak VVVVVV;

(kk) galvanizacija i lakiranje (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak WWWWWW.

(ll) norme područnih izvora za devet kategorija izvora proizvodnje metala i završne obrade – 40 C.F.R., odjeljak 63, pododjeljak XXXXXX;

(mm) proizvodnja ferolegura (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak YYYYYY;

(nn) ljevaonice aluminija, bakra i obojenih metala (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak ZZZZZZ;

(oo) prerada asfalta i proizvodnja krovnih obloga (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak AAAAAAA;

(pp) priprema kemikalija (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak BBBBBBB;

(qq) proizvodnja boja i srodnih proizvoda (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak CCCCCCC;

(rr) proizvodnja pripremljene hrane za životinje (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak DDDDDDD; i

(ss) proizvodnja i prerada zlatne rude (područni izvori) – 40 C.F.R., odjeljak 63, pododjeljak EEEEEEE.

X. Dodatak XI.

Novi Dodatak XI. dodaje se kako slijedi:

Dodatak XI.
Granične vrijednosti sadržaja hlapivih organskih spojeva u proizvodima

1. Odjeljak A primjenjuje se na stranke osim Kanade i Sjedinjenih Američkih Država, odjeljak B odnosi se na Kanadu, a odjeljak C na Sjedinjene Američke Države.

A. Stranke osim Kanade i Sjedinjenih Američkih Država

2. Ovaj se odjeljak odnosi na ograničenje emisija hlapivih organskih spojeva (HOS-ovi) zbog korištenja organskih otapala u određenim bojama i lakovima te proizvodima za završnu obradu automobila.

3. Za potrebe odjeljka A ovog Dodatka primjenjuju se sljedeće opće definicije:

(a) ‚tvari' znači svaki kemijski element i njegovi spojevi u prirodnom stanju ili industrijski proizvedeni u krutom, tekućem ili plinovitom obliku;

(b) ‚smjesa' znači smjese ili otopine koje se sastoje od dvije ili više tvari;

(c) ‚organski spoj' znači svaki spoj koji se sastoji od najmanje ugljika i vodika, kisika, sumpora, fosfora, silikona, dušika ili halogena, uz iznimku ugljikovih oksida i anorganskih karbonata i bikarbonata;

(d) ‚hlapivi organski spoj (HOS)' znači svaki organski spoj čije je početno vrelište niže od ili jednako 250 °C pri standardnom tlaku od 101,3 kPa;

(e) ‚sadržaj HOS-a' znači masa HOS-ova izražena u gramima po litri (g/l) u sastavu proizvoda u stanju spremnom za upotrebu. Masa HOS-ova u određenom proizvodu koji kemijski reagiraju tijekom sušenja kako bi stvorili dio premaza ne smatra se dijelom sadržaja HOS-a;

(f) ‚organsko otapalo' znači svaki HOS koji se koristi u kombinaciji s drugim tvarima za otapanje ili razrjeđivanje sirovina, proizvoda ili otpadnih materijala ili koji se koristi kao sredstvo za čišćenje za otapanje onečišćujućih tvari, kao medij za raspršivanje, za prilagodbu viskoznosti, za prilagodbu površinske napetosti, za plastificiranje ili kao konzervans;

(g) ‚premaz' znači svaka smjesa, uključujući sva organska otapala ili smjese potrebne za njezino pravilno nanošenje, koja se koristi kao dekorativni ili zaštitni sloj ili sloj s drugim funkcionalnim učinkom na površini;

(h) ‚sloj' znači neprekinuti sloj koji je posljedica nanošenja jednog sloja ili više slojeva na površinu;

(i) ‚premazi koji se razrjeđuju vodom' znači premazi čija se viskoznost prilagođava dodavanjem vode;

(j) ‚premazi koji se razrjeđuju otapalom' znači premazi čija se viskoznost prilagođava dodavanjem otapala;

(k) ‚stavljanje na tržište' znači stavljanje na raspolaganje trećim stranama u zamjenu za novac ili ne. Za potrebe ovog Dodatka uvoz u carinsko područje stranaka smatra se stavljanjem na tržište.

4. ‚Boje i lakovi' znači proizvodi navedeni u donjim potkategorijama, osim aerosola. To su premazi koji se nanose na građevine, njihovu stolariju i opremu i povezane strukture radi ukrašavanja, funkcionalnosti i zaštite:

(a) ‚mat premazi za unutrašnje zidove i stropove' znači premazi namijenjeni nanošenju na unutrašnje zidove i stropove sa sjajem < 25 pri 60 stupnjeva;

(b) ‚sjajni premazi za unutrašnje zidove i stropove' znači premazi namijenjeni nanošenju na unutrašnje zidove i stropove sa sjajem > 25 pri 60 stupnjeva;

(c) ‚premazi za vanjske zidove od mineralnih supstrata' znači premazi namijenjeni nanošenju na zidane vanjske zidove, zidove od cigle ili zidarskog gipsa;

(d) ‚boje za unutrašnju i vanjsku stolariju i obloge za drvo, metal ili plastiku' znači premazi namijenjeni nanošenju na stolariju i obloge kojima se stvara neproziran sloj. Ti su premazi namijenjeni drvenim, metalnim ili plastičnim površinama. Ovom su potkategorijom obuhvaćeni temeljni i prijelazni premazi;

(e) ‚lakovi za unutrašnju i vanjsku stolariju i lazure' znači premazi namijenjeni nanošenju na stolariju koji stvaraju proziran ili poluproziran sloj za ukrašavanje i zaštitu drva, metala i plastike. Ovom su potkategorijom obuhvaćene neprozirne lazure. Neprozirne lazure znači premazi koji stvaraju neproziran sloj za ukrašavanje i zaštitu drva od vremenskih utjecaja, prema definiciji u EN 927-1 unutar polustabilne kategorije;

(f) ‚rijetke lazure' znači lazure čija je srednja gustoća, u skladu s normom EN 927-1:1996, manja od 5 μm pri ispitivanju prema metodi 5A norme ISO 2808: 1997.;

(g) ‚temeljni premazi' znači premazi koji imaju svojstvo zatvaranja i/ili blokiranja namijenjeni nanošenju na drvo ili zidove i stropove;

(h) ‚povezujući temeljni premazi' znači premazi kojima se stabiliziraju raspršene čestice ili impregnira i/ili štiti drvo od plave truleži;

(i) ‚jednokomponentni premazi' znači funkcionalni premazi na osnovi materijala koji obrazuju tanki sloj. Oni su namijenjeni nanošenju kojim se postiže posebna funkcionalnost, poput temeljnih i završnih premaza plastike, temeljnog premaza željeznih površina, temeljnog premaza reaktivnih metala poput cinka i aluminija, antikorozivnih premaza, podnih premaza, uključujući premaze za drvene i cementne podove, premaza radi otpornosti na grafite, premaza kojima se osiguravaju otpornost na vatru te norme higijene u prehrambenoj industriji ili zdravstvu;

(j) ‚dvokomponentni premazi' znači premazi s istom namjenom kao i jednokomponentni, ali s još jednom komponentom (npr. tercijarni amini) koja se dodaje prije nanošenja;

(k) ‚višebojni premazi' znači premazi kojima se postiže učinak dvije nijanse ili više boja odmah pri prvom nanošenju;

(l) ‚premazi s ukrasnim učinkom' znači premazi koji se nanose preko posebno pripremljenih ranije obojanih površina ili temeljnih premaza radi posebnih estetskih učinaka i potom se obrađuju raznim alatima tijekom sušenja.

5. ‚Proizvodi za završnu obradu vozila' znači proizvodi navedeni u potkategorijama u nastavku. Oni se koriste za premazivanje cestovnih vozila ili njihovih dijelova koje se

obavlja u okviru popravka, zaštite ili ukrašavanja vozila izvan proizvodnih pogona. U tom smislu ‚cestovno vozilo' znači svako cjelovito ili necjelovito motorno vozilo namijenjeno prometovanju po cesti, s najmanje četiri kotača i najvećom brzinom većom od 25 km/h, i njegove prikolice, osim vozila koja prometuju tračnicama te poljoprivrednih i šumarskih traktora i svih pokretnih strojeva:

(a) ‚proizvodi za pripremu i čišćenje' znači proizvodi za kemijsko ili mehaničko uklanjanje starih premaza i hrđe ili za pripremu za nanošenje novih premaza:

(i) proizvodima za pripremu obuhvaćeni su razrjeđivač (proizvod kojim se čiste pištolji za prskanje i ostala oprema), odstranjivači boje, odmašćivači (uključujući antistatičke vrste za plastiku) i odstranjivači silikona;

(ii) ‚proizvod za prethodno čišćenje' znači proizvod za čišćenje kojim se čisti površina prije nanošenja premaza;

(b) ‚punilo za dubinska oštećenja' znači gusti spojevi namijenjeni nanošenju radi ispunjavanja dubokih površinskih oštećenja prije nanošenja kita za površinska oštećenja;

(c) ‚temeljni sloj' znači svaki premaz koji se nanosi na goli metal ili postojeće premaze radi zaštite od hrđe prije nanošenja površinskog temeljnog premaza:

(i) ‚punilo za površinska oštećenja' znači premaz koji se nanosi neposredno prije nanošenja završnog premaza radi otpornosti na hrđu i kako bi se osiguralo prianjanje završnog premaza te stvaranje jedinstvene površine ispunjavanjem manjih površinskih oštećenja;

(ii) ‚opći temeljni premaz za metal' znači premaz namijenjen nanošenju kao temeljni premaz, kao što su poboljšivači prianjanja, nepropusni premazi, fini kitovi, podloge, plastični temeljni premazi, mokro na mokro, kitovi bez pijeska i kitovi za raspršivanje;

(iii) ‚reaktivni temelj' znači premazi s masenim udjelom fosforne kiseline od najmanje 0,5 % za izravno nanošenje na gole metalne površine kako bi se osigurali otpornost na hrđu i prianjanje; premazi koji se koriste kao temeljni premazi koji omogućavaju zavarivanje i otopine koje nagrizaju galvanizirane i pocinčane površine;

(d) ‚završni premaz' znači svaki pigmentirani premaz koji se nanosi u jednom sloju ili više njih radi sjaja i otpornosti. Njime su obuhvaćeni svi proizvodi poput temeljnih premaza i prozirnih premaza:

(i) ‚temeljni premazi' znači pigmentirani premazi koji se nanose radi bojanja i postizanja svih željenih optičkih učinaka, ali ne i sjaja ili površinske otpornosti sustava premaza;

(ii) ‚prozirni premaz' znači prozirni premaz koji se nanosi radi završnog sjaja i svojstava otpornosti sustava premaza;

(e) ‚posebni premazi' znači premazi za nanošenje kao završni premazi kojima se postižu posebna svojstva poput metalnog ili bisernog efekta, u jednom sloju, visokofunkcionalni obojeni i prozirni premazi (npr. premazi otporni na grebanje i fluorirani prozirni premazi), zrcalni osnovni premazi, teksturni završni premazi (primjerice koji proizvode učinak udarca čekićem), protuklizni premaz, nepropusni premazi za podvozja, premazi otporni na udarac, unutarnji završni premazi; i aerosoli.

6. Stranke osiguravaju da su proizvodi obuhvaćeni ovim Dodatkom koji se stavljaju na tržište na njihovom državnom području u skladu s najvećim sadržajem HOS-a utvrđenim tablicama 1. i 2. Za potrebe obnove i održavanja zgrada i starodobnih vozila/oldtimera koje

su nadležna tijela odredila kao posebnu povijesnu i kulturnu vrijednost, stranke mogu izdati pojedinačne dozvole za prodaju i nabavu proizvoda koji nisu u skladu s graničnim vrijednostima HOS-a utvrđenima ovim Dodatkom, u strogo ograničenim količinama. Stranke isto tko mogu izuzeti od sukladnosti s gornjim zahtjevima proizvode koji se prodaju za isključivu primjenu pri aktivnosti obuhvaćenoj Dodatkom VI. koja se obavlja u registriranim i odobrenim postrojenjima koja su u skladu s ovim Dodatkom.

Tablica 1.

Najveći sadržaj HOS-a u bojama i lakovima

Potkategorija proizvoda	*Tip*	*(g/l)* *
Mat premaz za unutrašnje zidove i stropove (sjaj ≤ 25 pri 60 °)	VP	30
	OP	30
Sjajni premaz za unutrašnje zidove i stropove (sjaj > 25 pri 60 °)	VP	100
	OP	100
Vanjski zidovi od mineralnih supstrata	VP	40
	OP	430
Boje za unutrašnju/vanjsku stolariju i obloge za drvo i metal	VP	130
	OP	300
Lakovi za unutrašnju/vanjsku stolariju i lazure, uključujući neprozirne lazure	VP	130
	OP	400
Unutrašnje i vanjske rijetke lazure	VP	130
	OP	700
Temeljni premazi	VP	30
	OP	350
Povezujući temeljni premazi	VP	30
	OP	750
Jednokomponentni premazi	VP	140
	OP	500
Dvokomponentni reaktivni premazi za posebne namjene	VP	140
	OP	500
Višebojni premazi	VP	100
	OP	100
Premazi s ukrasnim učinkom	VP	200
	OP	200

* g/l spremno za upotrebu.

Tablica 2.

Najveći sadržaj HOS-a u proizvodima za završnu obradu vozila

Potkategorija proizvoda	*Premazi*	*HOS (g/l)**
Proizvodi za pripremu i čišćenje	Proizvod za pripremu	850
	Proizvod za prethodno čišćenje	200
Kit za dubinska oštećenja	Svi tipovi	250
Temeljni premaz	Kit za površinska oštećenja i opći temeljni premaz (za metal)	540
	Reaktivni temelj	780
Završni premaz	Svi tipovi	420
Posebni premazi	Svi tipovi	840

* g/l proizvoda spremnog za upotrebu. Osim kod ‚proizvoda za pripremu i čišćenje' sve udjele vode u proizvodu spremnom za upotrebu trebalo bi izostaviti.

B. Kanada

7. Granične vrijednosti za nadzor emisija HOS-ova iz proizvoda za široku potrošnju i komercijalnih proizvoda odredit će se, prema potrebi, uzimajući u obzir informacije o dostupnim tehnologijama, tehnikama i mjerama nadzora, granične vrijednosti koje se primjenjuju u ostalim nadležnostima i dokumente u nastavku:

(a) uredbe o graničnim vrijednostima koncentracija HOS-ova za premaze u arhitekturi, SOR/2009-264;

(b) granične vrijednosti koncentracija HOS-ova za proizvode za završnu obradu automobila, SOR/2009-197;

(c) uredbe o izmjeni uredbi o zabrani određenih toksičnih tvari, 2005 (2-metoksietanol, pentaklorobenzen i tetraklorobenzeni), SOR/2006-279;

(d) federalne uredbe o halogenim ugljicima, SOR/2003-289;

(e) uredbe o zabrani određenih toksičnih tvari, SOR/2003-99;

(f) uredbe o odmašćivanju otapalom, SOR/2003-283;

(g) uredbe o tetrakloroetilenu (upotreba pri kemijskom čišćenju i zahtjevi u pogledu izvješćivanja), SOR/2003-79;

(h) naredba kojom se otrovne tvari dodaju u Dodatak 1. kanadskog Zakona o zaštiti okoliša iz 1999.;

(i) obavijest o određenim tvarima na nacionalnom popisu tvari;

(j) naredba kojom se mijenja Dodatak 1. kanadskom Zakonu o zaštiti okoliša iz 1999. (razni programi);

(k) uredbe o onečišćivačima ozona, SOR/99-7;

(l) predložene uredbe o graničnim vrijednostima koncentracija HOS-a za određene proizvode;

(m) predložena obavijest kojom se zahtijeva priprema i provedba planova za sprečavanje onečišćenja u pogledu određenih tvari iz Dodatka 1. kanadskom Zakonu o zaštiti okoliša iz 1999. povezanih sa sektorom proizvodnje smole i sintetičke gume;

(n) predložena obavijest kojom se zahtijeva priprema i provedba planova za sprečavanje onečišćenja u pogledu određenih tvari iz Dodatka 1. kanadskom Zakonu o zaštiti okoliša iz 1999. koje se koriste u sektoru poliuretana i drugih pjena (osim polistirena);

(o) Obavijest o određenim klorofluorougljikovodicima;

(p) Obavijest o određenim tvarima na Nacionalnom popisu tvari; i

(q) Ekološki kodeks o smanjenju emisija otapala iz objekata za kemijsko čišćenje. PN 1053.

C. Sjedinjene Američke Države

8. Granične vrijednosti za nadzor emisija HOS-ova iz izvora koji podliježu Nacionalnim normama u pogledu emisije hlapive organske tvari za proizvode za široku potrošnju i komercijalnih proizvode navedene su u sljedećim dokumentima:

(a) završno premazivanje automobila – 40 C.F.R., odjeljak 59, pododjeljak B;

(b) proizvodi široke potrošnje – 40 C.F.R., odjeljak 59, pododjeljak C;

(c) premazi u arhitekturi – 40 C.F.R., odjeljak 59, pododjeljak D; i

(d) premazi u spreju – 40 C.F.R., odjeljak 59, pododjeljak E.

Amendment of the text of and Annexes II to IX to the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone and the addition of new annexes X and XI

Article 1
Amendment

The Parties to fhe 1999 Protocol to Abate Acidification, Eutrophication and Grund-level Ozone, meeting within the thirtieth session of the Executive Body,

Decide to amend the 1999 Protocol to Abate Acidification Eutrophication and Ground-level Ozone (Gothenburg Protocol) to the Convention on Long-range Transboundary Air Pollution as set out in the annex to this decision.

Article 2
Relationship to the Gothenburg Protocol

No State or regional economic integration organization may deposit an instrument of acceptance of this Amendment unless it has previously, or simultaneously, deposited an instrument of ratification, acceptance, approval or accession to the Gothenburg Protocol.

Arlicle 3
Entry into force

In accordance with article 13. paragraph 3. or the Gothenburg Protocol. this Amendment shall enter into force on the ninetieth day after the date on which two thirds orthe Parties to the Gothenburg Protocol have deposited with the Depositary their instruments of acceptance thereof.

Annex

A. Preamble

1. In the second preambular paragraph, the words "volatile organic compounds and reduced nitrogen compounds" are replaced by the words "volatile organic compounds, reduced nitrogen compounds and particulate matter".

2. In the third preambular paragraph, the words "and particulate matter" are inserted after the word "ozone".

3. In the fourth preambular paragraph, the words "sulphur and volatile organic compounds, as well as secondary pollutants such as ozone" are replaced by the words "sulphur,

volatile organic compounds, ammonia and directly emitted particulate matter, as well as secondarily formed pollutants such as ozone, particulate matter".

4. The following preambular paragraph is added between the fourth and fifth preambular paragraphs:

"*Recognizing* the assessments of scientific knowledge by international organizations, such as the United Nations Environment Programme, and by the Arctic Council, about the human health and climate co-benefits of reducing black carbon and ground-level ozone, particularly in the Arctic and in the Alpine regions,".

5. For the sixth preambular paragraph there is substituted:

Recognizing also that Canada and the United States of America are bilaterally addressing cross-border air pollution under the Canada – United States Air Quality Agreement, which includes commitments by both countries to reduce emissions of sulphur dioxide, nitrogen oxides and volatile organic compounds, and that the two countries are considering the inclusion of commitments to reduce emissions of particulate matter,

6. For the seventh preambular paragraph there is substituted:

Recognizing furthermore that Canada is committed to achieving reductions of sulphur dioxide, nitrogen oxides, volatile organic compounds and particulate matter to meet the Canadian Ambient Air Quality Standards for ozone and particulate matter and the national objective to reduce acidification, and that the United States is committed to the implementation of programmes to reduce emissions of nitrogen oxides, sulphur dioxide, volatile organic compounds and particulate matter necessary to meet national ambient air quality standards for ozone and particulate matter, to make continued progress in reducing acidification and eutrophication effects and to improve visibility in national parks and urban areas alike,

7. The ninth and tenth preambular paragraphs are replaced by the following preambular paragraphs:

"Taking into account the scientific knowledge about the hemispheric transport of air pollution, the influence of the nitrogen cycle and the potential synergies with and trade-offs between air pollution and climate change,

Aware that emissions from shipping and aviation contribute significantly to adverse effects on human health and the environment and are important issues under consideration by the International Maritime Organization and the International Civil Aviation Organization,".

8. In the fifteenth preambular paragraph, the words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter".

9. In the nineteenth preambular paragraph, the words "and particulate matter, including black carbon," are inserted after the words "nitrogen compounds".

10. The twentieth and twenty-first preambular paragraphs are deleted.

11. In the twenty-second preambular paragraph:

(a) The words "and ammonia" are replaced by the words "and reduced nitrogen compounds"; and

(b) The words "including nitrous oxide" are replaced by the words ", including nitrous oxide and nitrate levels in ecosystems,".

12. In the twenty-third preambular paragraph, the word "tropospheric" is replaced by the words "ground-level".

B. Article 1

1. The following paragraph is added after paragraph 1:

1 bis. The terms "this Protocol", "the Protocol" and "the present Protocol" mean the 1999 Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone, as amended from time to time;

2. The words ", expressed as ammonia (NH3)" are added at the end of paragraph 9.

3. The following paragraphs are added after paragraph 11:

11 bis. "Particulate matter" or "PM" is an air pollutant consisting of a mixture of particles suspended in the air. These particles differ in their physical properties (such as size and shape) and chemical composition. Unless otherwise stated, all references to particulate matter in the present Protocol refer to particles with an aerodynamic diameter equal to or less than 10 microns (μm) (PM10), including those with an aerodynamic diameter equal to or less than 2.5 μm (PM2.5);

11 ter. "Black carbon" means carbonaceous particulate matter that absorbs light;

11 quater. "Ozone precursors" means nitrogen oxides, volatile organic compounds, methane and carbon monoxide;

4. In paragraph 13, the words "or fluxes to receptors" are inserted after the word "atmosphere".

5. In paragraph 15, the words "volatile organic compounds or ammonia" are replaced by the words "volatile organic compounds, ammonia or particulate matter".

6. For paragraph 16 there is substituted:

"New stationary source" means any stationary source of which the construction or substantial modification is commenced after the expiry of one year from the date of

entry into force for a Party of the present Protocol. A Party may decide not to treat as a new stationary source any stationary source for which approval has already been given by the appropriate competent national authorities at the time of entry into force of the Protocol for that Party and provided that the construction or substantial modification is commenced within 5 years of that date. It shall be a matter for the competent national authorities to decide whether a modification is substantial or not, taking account of such factors as the environmental benefits of the modification.

C. Article 2

1. In the chapeau:

(a) Before the words "The objective of the present Protocol" is inserted "1.";

(b) The words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter";

(c) The words "and the environment" are inserted after "human health";

(d) The words "materials and crops" are replaced by the words "materials, crops and the climate in the short and long term"; and

(e) The words ", particulate matter" are inserted after the word "eutrophication".

2. The words ", that allow ecosystem recovery" are inserted at the end of subparagraph (a).

3. In subparagraph (b), the words ", that allow ecosystem recovery" are added at the end of the subparagraph and the word "and" is deleted after the semicolon.

4. In subparagraph (c) (ii), the words "Canada-wide Standard" are replaced by the words "Canadian Ambient Air Quality Standard".

5. New subparagraphs (d), (e) and (f) are added after subparagraph (c) as follows:

(d) For particulate matter:

(i) For Parties within the geographical scope of EMEP, the critical levels of particulate matter, as given in annex I;

(ii) For Canada, the Canadian Ambient Air Quality Standards for particulate matter; and

(iii) For the United States of America, the National Ambient Air Quality Standards for particulate matter;

(e) For Parties within the geographical scope of EMEP, the critical levels of ammonia, as given in annex I; and

(f) For Parties within the geographical scope of EMEP, the acceptable levels of air pollutants to protect materials, as given in annex I.

6. A new paragraph 2 is added at the end of article 2 as follows:

2. A further objective is that Parties should, in implementing measures to achieve their national targets for particulate matter, give priority, to the extent they consider appropriate, to emission reduction measures which also significantly reduce black carbon in order to provide benefits for human health and the environment and to help mitigation of near-term climate change.

D. Article 3

1. In paragraph 1:

(a) The word "ceiling" in the first line is replaced by the words "reduction commitment";

(b) The word "ceiling" in the second line is replaced by the word "commitment"; and

(c) The words "In taking steps to reduce emissions of particulate matter, each Party should seek reductions from those source categories known to emit high amounts of black carbon, to the extent it considers appropriate." are added at the end of the paragraph.

2. In paragraphs 2 and 3, the words "V and VI" are replaced by the words "V, VI and X".

3. The words "Subject to paragraphs 2 bis and 2 ter," are inserted at the beginning of paragraph 2.

4. New paragraphs 2 bis and 2 ter are inserted as follows:

2 bis. A Party that was already a Party to the present Protocol prior to entry into force of an amendment that introduces new source categories may apply the limit values applicable to an "existing stationary source" to any source in such a new category the construction or substantial modification of which is commenced before the expiry of one year from the date of entry into force of that amendment for that Party, unless and until that source later undergoes substantial modification.

2 ter. A Party that was already a Party to the present Protocol prior to entry into force of an amendment that introduces new limit values applicable to a "new stationary source" may continue to apply the previously applicable limit values to any source the construction or substantial modification of which is commenced before the expiry of one year from the date of entry into force of that amendment for that Party, unless and until that source later undergoes substantial modification.

5. Paragraph 4 is deleted.

6. For paragraph 6 there is substituted:

Each Party should apply best available techniques to mobile sources covered by annex VIII and to each stationary source covered by annexes IV, V, VI and X, and, as it considers appropriate, measures to control black carbon as a component of particulate matter, taking into account guidance adopted by the Executive Body.

7. For paragraph 7 there is substituted:

Each Party shall, insofar as it is technically and economically feasible, and taking into consideration the costs and advantages, apply the limit values for VOC contents of products as identified in annex XI in accordance with the timescales specified in annex VII.

8. In paragraph 8 (b):

(a) The words "document V" and "at its seventeenth session (decision 1999/1) and any amendments thereto" are deleted; and

(b) The following sentence is added at the end of the paragraph:

Special attention should be given to reductions of ammonia emissions from significant sources of ammonia for that Party.

9. In paragraph 9 (b), the words "ammonia and/or volatile organic compounds contributing to acidification, eutrophication or ozone formation" are replaced by the words "ammonia, volatile organic compounds and/or particulate matter contributing to acidification, eutrophication, ozone formation or increased levels of particulate matter".

10. In paragraph 10 (b), the words "sulphur and/or volatile organic compounds" are replaced by the words "sulphur, volatile organic compounds and/or particulate matter".

11. For paragraph 11 there is substituted the following:

Canada and the United States of America shall, upon ratification, acceptance or approval of, or accession to the present Protocol or the amendment contained in decision 2012/2 submit to the Executive Body their respective emission reduction commitments with respect to sulphur, nitrogen oxides, volatile organic compounds and particulate matter for automatic incorporation into annex II.

12. New paragraphs are added after paragraph 11 as follows:

11 bis. Canada shall also upon ratification, acceptance or approval of, or accession to the present Protocol, submit to the Executive Body relevant limit values for automatic incorporation into annexes IV, V, VI, VIII, X and XI.

11 ter. Each Party shall develop and maintain inventories and projections for the emissions of sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds, and particulate matter. Parties within the geographic scope of EMEP shall use the methodologies specified in guidelines prepared by the Steering Body of EMEP and adopted by the Parties at a session of the Executive Body. Parties in areas outside the geographic scope of EMEP shall use as guidance the methodologies developed through the workplan of the Executive Body.

11 quater. Each Party should actively participate in programmes under the Convention on the effects of air pollution on human health and the environment.

11 quinquies. For the purposes of comparing national emission totals with emission reduction commitments as set out in paragraph 1, a Party may use a procedure specified in a decision of the Executive Body. Such a procedure shall include provisions on the submission of supporting documentation and on review of the use of the procedure.

E. Article 3 bis

1. A new article 3 bis is added as follows:

Article 3 bis
Flexible Transitional Arrangements

1. Notwithstanding article 3, paragraphs 2, 3, 5 and 6, a Party to the Convention that becomes a Party to the present Protocol between January 1, 2013, and December 31, 2019, may apply flexible transitional arrangements for the implementation of limit values specified in annexes VI and/or VIII under the conditions specified in this article.

2. Any Party electing to apply the flexible transitional arrangements under this article shall indicate in its instrument of ratification, acceptance or approval of or accession to the present Protocol the following:

(a) the specific provisions of annex VI and/or VIII for which the Party is electing to apply flexible transitional arrangements; and

(b) an implementation plan identifying a timetable for full implementation of the specified provisions.

3. An implementation plan under paragraph 2 (b) shall, at a minimum, provide for implementation of the limit values for new and existing stationary sources specified in Tables 1 and 5 of annex VI and Tables 1, 2, 3, 13 and 14 of annex VIII no later than eight years after entry into force of the present Protocol for the Party, or December 31, 2022, whichever is sooner.

4. In no case may a Party's implementation of any limit values for new and existing stationary sources specified in annex VI or annex VIII be postponed past December 31, 2030.

5. A Party electing to apply the flexible transitional arrangements under this article shall provide the Executive Secretary of the Commission with a triennial report of its progress towards implementation of annex VI and/or annex VIII. The Executive Secretary of the Commission will make such triennial reports available to the Executive Body.

F. Article 4

1. In paragraph 1, the words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter, including black carbon".

2. In paragraph 1 (a), the words "low emission burners and good environmental practice in agriculture" are replaced by the words "low emission burners, good environmental practice in agriculture and measures that are known to mitigate emissions of black carbon as a component of particulate matter".

G. Article 5

1. In paragraph 1 (a):

(a) The words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter, including black carbon"; and

(b) The words "national emission ceilings or" are replaced by the words "emission reduction commitments and".

2. For paragraph 1 (c) is substituted:

(c) Levels of ground-level ozone and particulate matter;

3. In paragraph 1 (d), "6." is replaced by "6; and".

4. A new paragraph 1 (e) is added as follows:

(e) The environmental and human health improvements associated with attaining emission reduction commitments for 2020 and beyond as listed in annex II. For countries within the geographical scope of EMEP, information on such improvements will be presented in guidance adopted by the Executive Body.

5. In paragraph 2 (e):

(a) The words "Health and environmental" are replaced by the words "Human health, environmental and climate"; and

(b) The words "reduction of" are inserted after the words "associated with".

H. Article 6

1. In paragraph 1 (b), the words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter".

2. In paragraph 1 (f), the words "documents 1 to V" and "at its seventeenth session (decision 1999/1) and any amendments thereto" are deleted.

3. In paragraph 1 (g), the words "document VI" and "at its seventeenth session (decision 1999/1) and any amendments thereto" are deleted.

4. In paragraph 1 (h), the words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter".

5. For paragraph 2 is substituted:

Each Party shall collect and maintain information on:

(a) Ambient concentrations and depositions of sulphur and nitrogen compounds;

(b) Ambient concentrations of ozone, volatile organic compounds and particulate matter; and

(c) If practicable, estimates of exposure to ground-level ozone and particulate matter.

Each Party shall, if practicable, also collect and maintain information on the effects of all of these pollutants on human health, terrestrial and aquatic ecosystems, materials and the climate. Parties within the geographic scope of EMEP should use guidelines adopted by the Executive Body. Parties outside the geographic scope of EMEP should use as guidance the methodologies developed through the workplan of the Executive Body.

6. A new paragraph 2 bis is inserted as follows:

2 bis. Each Party should, to the extent it considers appropriate, also develop and maintain inventories and projections for emissions of black carbon, using guidelines adopted by the Executive Body.

I. Article 7

1. In paragraph 1 (a) (ii), for the words "paragraph 3" are substituted the words "paragraphs 3 and 7".

2. For the chapeau of paragraph 1 (b) is substituted:

(b) Each Party within the geographical scope of EMEP shall report to EMEP through the Executive Secretary of the Commission the following information for the emissions of sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds and particulate matter, on the basis of guidelines prepared by the Steering Body of EMEP and adopted by the Executive Body:

3. In paragraph 1 (b) (i), the words "of sulphur, nitrogen oxides, ammonia and volatile organic compounds" are deleted.

4. In paragraph 1 (b) (ii):

(a) The words "of each substance" are deleted; and

(b) For the number "(1990)" is substituted the words "specified in annex II".

5. In paragraph 1 (b) (iii), the words "and current reduction plans" are deleted.

6. For paragraph 1 (b) (iv) is substituted:

(iv) An Informative Inventory Report containing detailed information on reported emission inventories and emission projections;

7. A new paragraph 1 (b bis) is added as follows:

(b bis) Each Party within the geographical scope of EMEP should report available information to the Executive Body, through the Executive Secretary of the Commission, on its air pollution effects programmes on human health and the environment and atmospheric monitoring and modelling programmes under the Convention, using guidelines adopted by the Executive Body;

8. For paragraph 1 (c), there is substituted:

(c) Parties in areas outside the geographical scope of EMEP shall report available information on levels of emissions, including for the reference year specified in annex II and appropriate to the geographic area covered by its emission reduction commitments. Parties in areas outside the geographic scope of EMEP should make available information similar to that specified in subparagraph (b bis), if requested to do so by the Executive Body.

9. A new subparagraph (d) is added after subparagraph 1 (c) as follows:

(d) Each Party should also report, where available, its emissions inventories and projections for emissions of black carbon, using guidelines adopted by the Executive Body.

10. For the chapeau to paragraph 3, there is substituted:

Upon the request of and in accordance with the timescales decided by the Executive Body, EMEP and other subsidiary bodies shall provide the Executive Body with relevant information on:

11. In paragraph 3 (a), the words "particulate matter including black carbon," are inserted after the words "concentrations of".

12. In paragraph 3 (b), the words "ozone and its precursors." are replaced by the words "particulate matter, ground-level ozone and their precursors;".

13. New subparagraphs (c) and (d) are inserted after subparagraph 3 (b) as follows:

(c) Adverse effects on human health, natural ecosystems, materials and crops, including interactions with climate change and the environment related to the substances covered by the present Protocol, and progress in achieving human health and environmental improvements as described in guidance adopted by the Executive Body; and

(d) The calculation of nitrogen budgets, nitrogen use efficiency and nitrogen surpluses and their improvements within the geographical area of EMEP, using guidance adopted by the Executive Body.

14. The final sentence of paragraph 3 is deleted.

15. In paragraph 4, the words "and particulate matter" are added at the end of the paragraph.

16. In paragraph 5, the words "actual ozone concentrations and the critical levels of ozone" are replaced by the words "actual ozone and particulate matter concentrations and the critical levels of ozone and particulate matter".

17. A new paragraph 6 is added as follows:

> 6. Notwithstanding article 7.1 (b), a Party may request the Executive Body for permission to report a limited inventory for a particular pollutant or pollutants if:
>
> (a) The Party did not previously have reporting obligations under the present Protocol or any other protocol for that pollutant; and
>
> (b) The limited inventory of the Party includes, at a minimum, all large point sources of the pollutant or pollutants within the Party or a relevant PEMA.
>
> The Executive Body shall grant such a request annually for up to five years after entry into force of the present Protocol for a Party, but in no case for reporting of emissions for any year after 2019. Such a request will be accompanied by information on progress toward developing a more complete inventory as part of the Party's annual reporting.

J. Article 8

1. In paragraph (b), the words "particulate matter, including black carbon," are inserted after the words "those on".

2. In paragraph (c), the words "nitrogen compounds and volatile organic compounds" are replaced by the words "nitrogen compounds, volatile organic compounds and particulate matter, including black carbon".

3. After paragraph (d), a new paragraph (d bis) is added as follows:

> The improvement of the scientific understanding of the potential co-benefits for climate change mitigation associated with potential reduction scenarios for air pollutants (such as methane, carbon monoxide and black carbon) which have near-term radiative forcing and other climate effects;

4. In paragraph (e), the words "eutrophication and photochemical pollution" are replaced by the words "eutrophication, photochemical pollution and particulate matter".

5. In paragraph (f), the words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and other ozone precursors, and particulate matter".

6. In paragraph (g):

(a) The words "nitrogen and volatile organic compounds" are replaced by the words "nitrogen, volatile organic compounds and particulate matter";

(b) The words "including their contribution to concentrations of particulate matter," are deleted; and

(c) The words "volatile organic compounds and tropospheric ozone" are replaced by the words "volatile organic compounds, particulate matter and ground-level ozone".

7. In paragraph (k):

(a) The words "environment and human health" are replaced by the words "environment, human health and the impacts on climate"; and

(b) The words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter".

K. Article 10

1. In paragraph 1, the words "sulphur and nitrogen compounds" are replaced by the words "sulphur, nitrogen compounds and particulate matter".

2. In paragraph 2 (b):

(a) The words "health effects" are replaced by the words "human health effects, climate co-benefits"; and

(b) The words "particulate matter," are inserted after the words "related to".

3. New paragraphs 3 and 4 are added as follows:

3. The Executive Body shall include in its reviews under this article an evaluation of mitigation measures for black carbon emissions, no later than at the second session of the Executive Body after entry into force of the amendment contained in decision 2012/2.

4. The Parties shall, no later than at the second session of the Executive Body after entry into force of the amendment contained in decision 2012/2, evaluate ammonia control measures and consider the need to revise annex IX.

L. Article 13

For article 13 there shall be substituted:

Article 13
Adjustments

1. Any Party to the Convention may propose an adjustment to annex II to the present Protocol to add to it its name, together with emission levels, emission ceilings and percentage emission reductions.

2. Any Party may propose an adjustment of its emission reduction commitments already listed in annex II. Such a proposal must include supporting documentation, and

shall be reviewed, as specified in a decision of the Executive Body. This review shall take place prior to the proposal being discussed by the Parties in accordance with paragraph 4.

3. Any Party eligible under article 3, paragraph 9, may propose an adjustment to annex III to add one or more PEMAs or make changes to a PEMA under its jurisdiction that is listed in that annex.

4. Proposed adjustments shall be submitted in writing to the Executive Secretary of the Commission, who shall communicate them to all Parties. The Parties shall discuss the proposed adjustments at the next session of the Executive Body, provided that those proposals have been circulated by the Executive Secretary to the Parties at least ninety days in advance.

5. Adjustments shall be adopted by consensus of the Parties present at a session of the Executive Body and shall become effective for all Parties to the present Protocol on the ninetieth day following the date on which the Executive Secretary of the Commission notifies those Parties in writing of the adoption of the adjustment.

Article 13 bis

Amendments

1. Any Party may propose amendments to the present Protocol.

2. Proposed amendments shall be submitted in writing to the Executive Secretary of the Commission, who shall communicate them to all Parties. The Parties shall discuss the proposed amendments at the next session of the Executive Body, provided that those proposals have been circulated by the Executive Secretary to the Parties at least ninety days in advance.

3. Amendments to the present Protocol other than to annexes I and III shall be adopted by consensus of the Parties present at a session of the Executive Body, and shall enter into force for the Parties which have accepted them on the ninetieth day after the date on which two thirds of those that were Parties at the time of their adoption have deposited with the Depositary their instruments of acceptance thereof. Amendments shall enter into force for any other Party on the ninetieth day after the date on which that Party has deposited its instrument of acceptance thereof.

4. Amendments to annexes I and III to the present Protocol shall be adopted by consensus of the Parties present at a session of the Executive Body. On the expiry of one hundred and eighty days from the date of its communication to all Parties by the Executive Secretary of the Commission, an amendment to any such annex shall become effective for those Parties which have not submitted to the Depositary a notification in accordance with the provisions of paragraph 5, provided that at least sixteen Parties have not submitted such a notification.

5. Any Party that is unable to approve an amendment to annexes I and/or III, shall so notify the Depositary in writing within ninety days from the date of the communication of its adoption. The Depositary shall without delay notify all Parties of

any such notification received. A Party may at any time substitute an acceptance for its previous notification and, upon deposit of an instrument of acceptance with the Depositary, the amendment to such an annex shall become effective for that Party.

6. For those Parties having accepted it, the procedure set out in paragraph 7 supersedes the procedure set out in paragraph 3 in respect of amendments to annexes IV to XI.

7. Amendments to annexes IV to XI shall be adopted by consensus of the Parties present at a session of the Executive Body. On the expiry of one year from the date of its communication to all Parties by the Executive Secretary of the Commission, an amendment to any such annex shall become effective for those Parties which have not submitted to the Depositary a notification in accordance with the provisions of subparagraph (a):

(a) Any Party that is unable to approve an amendment to annexes IV to XI shall so notify the Depositary in writing within one year from the date of the communication of its adoption. The Depositary shall without delay notify all Parties of any such notification received. A Party may at any time substitute an acceptance for its previous notification and, upon deposit of an instrument of acceptance with the Depositary, the amendment to such an annex shall become effective for that Party;

(b) Any amendment to annexes IV to XI shall not enter into force if an aggregate number of sixteen or more Parties have either:

(i) Submitted a notification in accordance with the provisions of subparagraph (a); or

(ii) Not accepted the procedure set out in this paragraph and not yet deposited an instrument of acceptance in accordance with the provisions of paragraph 3.

M. Article 15

A new paragraph 4 is added as follows:

4. A State or Regional Economic Integration Organisation shall declare in its instrument of ratification, acceptance, approval or accession if it does not intend to be bound by the procedures set out in article 13bis, paragraph 7, as regards the amendment of annexes IV – XI.

N. New Article 18 bis

A new Article 18 bis is added after Article 18 as follows:

Article 18 bis
Termination of Protocols

When all of the Parties to any of the following Protocols have deposited their instruments of ratification, acceptance, approval of or accession to the present Protocol with the Depository in accordance with article 15, that Protocol shall be considered as terminated:

(a) The 1985 Helsinki Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent;

(b) The 1988 Sofia Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes;

(c) The 1991 Geneva Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes;

(d) The 1994 Oslo Protocol on Further Reduction of Sulphur Emissions.

O. Annex II

For annex II the following text is substituted:

Emission reduction commitments

1. The emission reduction commitments listed in the tables below relate to the provisions of article 3, paragraphs 1 and 10, of the present Protocol.

2. Table 1 includes the emission ceilings for sulphur dioxide (SO2), nitrogen oxides (NOx), ammonia (NH3) and volatile organic compounds (VOCs) for 2010 up to 2020 expressed in thousands of metric tons (tonnes) for those Parties that ratified the present Protocol prior to 2010.

3. Tables 2–6 include emission reduction commitments for SO2, NOx, NH3, VOCs and PM2.5 for 2020 and beyond. These commitments are expressed as a percentage reduction from the 2005 emission level.

4. The 2005 emission estimates listed in tables 2-6 are in thousands of tonnes and represent the latest best available data reported by the Parties in 2012. These estimates are given for information purposes only, and may be updated by the Parties in the course of their reporting of emission data under the present Protocol if better information becomes available. The Secretariat will maintain and regularly update on the Convention's website a table of the most up-to-date estimates reported by Parties, for information. The percentage emission reduction commitments listed in tables 2-6 are applicable to the most up-to-date 2005 estimates as reported by the Parties to the Executive Secretary of the Commission.

5. If in a given year a Party finds that, due to a particularly cold winter, a particularly dry summer or unforeseen variations in economic activities, such as a loss of capacity in the power supply system domestically or in a neighbouring country, it cannot comply with its emission reduction commitments, it may fulfil those commitments by averaging its national annual emissions for the year in question, the year preceding that year and the year following it, provided that this average does not exceed its commitment.

Table 1

Emission ceilings for 2010 up to 2020 for Parties that ratified the present Protocol prior to 2010 (expressed in thousands of tonnes per year)

	Party	*Ratification*	*SO_2*	*NO_x*	*NH_3*	*VOCs*
1	Belgium	2007	106	181	74	144
2	Bulgaria	2005	856	266	108	185
3	Croatia	2008	70	87	30	90
4	Cyprus	2007	39	23	9	14
5	Czech Republic	2004	283	286	101	220
6	Denmark	2002	55	127	69	85
7	Finland	2003	116	170	31	130
8	France	2007	400	860	780	1 100
9	Germany	2004	550	1 081	550	995
10	Hungary	2006	550	198	90	137
11	Latvia	2004	107	84	44	136
12	Lithuania	2004	145	110	84	92
13	Luxembourg	2001	4	11	7	9
14	Netherlands	2004	50	266	128	191
15	Norway	2002	22	156	23	195
16	Portugal	2005	170	260	108	202
17	Romania	2003	918	437	210	523
18	Slovakia	2005	110	130	39	140
19	Slovenia	2004	27	45	20	40
20	Spain [a]	2005	774	847	353	669
21	Sweden	2002	67	148	57	241
22	Switzerland	2005	26	79	63	144
23	United Kingdom of Great Britain and Northern Ireland	2005	625	1 181	297	1 200
24	United States of America	2004	*b*	*c*		*d*
25	European Union	2003	7 832	8 180	4 294	7 585

a Figures apply to the European part of the country.

b Upon acceptance of the present Protocol in 2004, the United States of America provided an indicative target for 2010 of 16,013,000 tons for total sulphur emissions from the PEMA identified for sulphur, the 48 contiguous United States and the District of Columbia. This figure converts to 14,527,000 tonnes.

c Upon acceptance of the present Protocol in 2004, the United States of America provided an indicative target for 2010 of 6,897,000 tons for total NOx emissions from the PEMA identified for NOx, Connecticut, Delaware, the District of Columbia, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wisconsin. This figure converts to 6,257,000 tonnes.

d Upon acceptance of the present Protocol in 2004, the United States of America provided an indicative target for 2010 of 4,972,000 tons for total VOC emissions from the PEMA identified for VOCs, Connecticut, Delaware, the District of Columbia, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wisconsin. This figure converts to 4,511,000 tonnes.

Table 2

Emission reduction commitments for sulphur dioxide for 2020 and beyond

	Convention Party	*Emission levels 2005 in thousands of tonnes of SO_2*	*Reduction from 2005 level (%)*
1	Austria	27	26
2	Belarus	79	20
3	Belgium	145	43
4	Bulgaria	777	78
5	Canada [a]		
6	Croatia	63	55
7	Cyprus	38	83
8	Czech Republic	219	45
9	Denmark	23	35
10	Estonia	76	32
11	Finland	69	30
12	France	467	55
13	Germany	517	21
14	Greece	542	74
15	Hungary	129	46
16	Ireland	71	65
17	Italy	403	35
18	Latvia	6.7	8
19	Lithuania	44	55
20	Luxembourg	2.5	34
21	Malta	11	77
22	Netherlands [b]	65	28
23	Norway	24	10
24	Poland	1 224	59
25	Portugal	177	63
26	Romania	643	77
27	Slovakia	89	57
28	Slovenia	40	63
29	Spain [b]	1 282	67
30	Sweden	36	22
31	Switzerland	17	21
32	United Kingdom of Great Britain and Northern Ireland	706	59
33	United States of America [c]		
34	European Union	7 828	59

a Upon ratification, acceptance or approval of, or accession to the present Protocol, Canada shall provide: (a) a value for total estimated sulphur emission levels for 2005, either national or for its PEMA, if it has submitted one; and (b) an indicative value for a reduction of total sulphur emission levels for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be offered as an adjustment to annex III to the Protocol.

b Figures apply to the European part of the country.

c Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the present Protocol, the United States of America shall provide: (a) a value for total estimated sulphur emission levels for 2005, either national or for a PEMA; (b) an indicative value for a reduction of total sulphur emission levels for 2020 from identified 2005 levels; and (c) any changes to the PEMA identified when the United States became a Party to the Protocol. Item (a) will be included in the table, item (b) will be included in a footnote to the table, and item (c) will be offered as an adjustment to annex III.

Table 3

Emission reduction commitments for nitrogen oxides for 2020 and beyond[a]

	Convention Party	*Emission levels 2005 in thousands of tonnes of NO_2*	*Reduction from 2005 level (%)*
1	Austria	231	37
2	Belarus	171	25
3	Belgium	291	41
4	Bulgaria	154	41
5	Canada[b]		
6	Croatia	81	31
7	Cyprus	21	44
8	Czech Republic	286	35
9	Denmark	181	56
10	Estonia	36	18
11	Finland	177	35
12	France	1 430	50
13	Germany	1 464	39
14	Greece	419	31
15	Hungary	203	34
16	Ireland	127	49
17	Italy	1 212	40
18	Latvia	37	32
19	Lithuania	58	48
20	Luxembourg	19	43
21	Malta	9.3	42
22	Netherlands[c]	370	45
23	Norway	200	23
24	Poland	866	30
25	Portugal	256	36

	Convention Party	*Emission levels 2005 in thousands of tonnes of NO_2*	*Reduction from 2005 level (%)*
26	Romania	309	45
27	Slovakia	102	36
28	Slovenia	47	39
29	Spain [c]	1 292	41
30	Sweden	174	36
31	Switzerland [d]	94	41
32	United Kingdom of Great Britain and Northern Ireland	1 580	55
33	United States of America[e]		
34	European Union	11 354	42

a Emissions from soils are not included in the 2005 estimates for EU member States.

b Upon ratification, acceptance or approval of, or accession to the present Protocol, Canada shall provide: (a) a value for total estimated nitrogen oxide emission levels for 2005, either national or for its PEMA, if it has submitted one; and (b) an indicative value for a reduction of total nitrogen oxide emission levels for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be offered as an adjustment to annex III to the Protocol.

c Figures apply to the European part of the country.

d Including emissions from crop production and agricultural soils (NFR 4D).

e Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the present Protocol, the United States of America shall provide: (a) a value for total estimated nitrogen oxides emission levels for 2005, either national or for a PEMA; (b) an indicative value for a reduction of total nitrogen oxides emission levels for 2020 from identified 2005 levels; and (c) any changes to the PEMA identified when the United States became a Party to the Protocol. Item (a) will be included in the table, item (b) will be included in a footnote to the table, and item (c) will be offered as an adjustment to annex III.

Table 4
Emission reduction commitments for ammonia for 2020 and beyond

	Convention Party	*Emission levels 2005 in thousands of tonnes of NH_3*	*Reduction from 2005 level (%)*
1	Austria	63	1
2	Belarus	136	7
3	Belgium	71	2
4	Bulgaria	60	3
5	Croatia	40	1
6	Cyprus	5.8	10
7	Czech Republic	82	7
8	Denmark	83	24
9	Estonia	9.8	1
10	Finland	39	20
11	France	661	4
12	Germany	573	5
13	Greece	68	7
14	Hungary	80	10

	Convention Party	*Emission levels 2005 in thousands of tonnes of NH_3*	*Reduction from 2005 level (%)*
15	Ireland	109	1
16	Italy	416	5
17	Latvia	16	1
18	Lithuania	39	10
19	Luxembourg	5.0	1
20	Malta	1.6	4
21	Netherlands [a]	141	13
22	Norway	23	8
23	Poland	270	1
24	Portugal	50	7
25	Romania	199	13
26	Slovakia	29	15
27	Slovenia	18	1
28	Spain[a]	365	3
29	Sweden	55	15
30	Switzerland	64	8
31	United Kingdom of Great Britain and Northern Ireland	307	8
32	European Union	3 813	6

a Figures apply to the European part of the country.

Table 5
Emission reduction commitments for Volatile Organic Compounds for 2020 and beyond

	Convention Party	*Emission levels 2005 in thousands of tonnes of VOC*	*Reduction from 2005 level (%)*
1	Austria	162	21
2	Belarus	349	15
3	Belgium	143	21
4	Bulgaria	158	21
5	Canada [a]		
6	Croatia	101	34
7	Cyprus	14	45
8	Czech Republic	182	18
9	Denmark	110	35
10	Estonia	41	10
11	Finland	131	35
12	France	1 232	43
13	Germany	1 143	13
14	Greece	222	54
15	Hungary	177	30
16	Ireland	57	25

	Convention Party	*Emission levels 2005 in thousands of tonnes of VOC*	*Reduction from 2005 level (%)*
17	Italy	1 286	35
18	Latvia	73	27
19	Lithuania	84	32
20	Luxembourg	9.8	29
21	Malta	3.3	23
22	Netherlands[b]	182	8
23	Norway	218	40
24	Poland	593	25
25	Portugal	207	18
26	Romania	425	25
27	Slovakia	73	18
28	Slovenia	37	23
29	Spain[b]	809	22
30	Sweden	197	25
31	Switzerland[c]	103	30
32	United Kingdom of Great Britain and Northern Ireland	1 088	32
33	United States of America[d]		
34	European Union	8 842	28

a Upon ratification, acceptance or approval of, or accession to the present Protocol, Canada shall provide: (a) a value for total estimated VOC emission levels for 2005, either national or for its PEMA, if it has submitted one; and (b) an indicative value for a reduction of total VOC emission levels for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be offered as an adjustment to annex III to the Protocol.

b Figures apply to the European part of the country.

c Including emissions from crop production and agricultural soils (NFR 4D).

d Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the present Protocol, the United States of America shall provide: (a) a value for total estimated VOC emission levels for 2005, either national or for a PEMA; (b) an indicative value for a reduction of total VOC emission levels for 2020 from identified 2005 levels; and (c) any changes to the PEMA identified when the United States became a Party to the Protocol. Item (a) will be included in the table, item (b) will be included in a footnote to the table, and item (c) will be offered as an adjustment to annex III.

Table 6
Emission reduction commitments for PM2.5 for 2020 and beyond

	Convention Party	*Emission levels 2005 in thousands of tonnes of $PM_{2.5}$*	*Reduction from 2005 level (%)*
1	Austria	22	20
2	Belarus	46	10
3	Belgium	24	20
4	Bulgaria	44	20
5	Canada[a]		
6	Croatia	13	18
7	Cyprus	2.9	46

	Convention Party	*Emission levels 2005 in thousands of tonnes of $PM_{2.5}$*	*Reduction from 2005 level (%)*
8	Czech Republic	22	17
9	Denmark	25	33
10	Estonia	20	15
11	Finland	36	30
12	France	304	27
13	Germany	121	26
14	Greece	56	35
15	Hungary	31	13
16	Ireland	11	18
17	Italy	166	10
18	Latvia	27	16
19	Lithuania	8.7	20
20	Luxembourg	3.1	15
21	Malta	1.3	25
22	Netherlands [b]	21	37
23	Norway	52	30
24	Poland	133	16
25	Portugal	65	15

	Convention Party	*Emission levels 2005 in thousands of tonnes of $PM_{2.5}$*	*Reduction from 2005 level (%)*
26	Romania	106	28
27	Slovakia	37	36
28	Slovenia	14	25
29	Spain [b]	93	15
30	Sweden	29	19
31	Switzerland	11	26
32	United Kingdom of Great Britain and Northern Ireland	81	30
33	United States of America [c]		
34	European Union	1 504	22

a Upon ratification, acceptance or approval of, or accession to the present Protocol, Canada shall provide: (a) a value for total estimated PM emission levels for 2005, either national or for its PEMA, if it has submitted one; and (b) an indicative value for a reduction of total emission levels of PM for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be offered as an adjustment to annex III to the Protocol.

b Figures apply to the European part of the country.

c Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the present Protocol, the United States of America shall provide: (a) a value for total estimated PM2.5 emission levels for 2005, either national or for a PEMA; and (b) an indicative value for a reduction of total PM2.5 emission levels for 2020 from identified 2005 levels. Item (a) will be included in the table and item (b) will be included in a footnote to the table.

P. Annex III

1. In the sentence underneath the heading, the words "PEMA is" are replaced by the words "PEMAs are".

2. A new subheading and paragraph are added before the entry for the Russian Federation PEMA as follows:

Canada PEMA

The PEMA for sulphur for Canada is an area of 1 million square kilometres which includes all the territory of the Provinces of Prince Edward Island, Nova Scotia and New Brunswick, all the territory of the Province of Québec south of a straight line between Havre-St. Pierre on the north coast of the Gulf of Saint Lawrence and the point where Québec-Ontario boundary intersects with the James Bay coastline, and all the territory of the Province of Ontario south of a straight line between the point where the Ontario-Québec boundary intersects the James Bay coastline and the Nipigon River near the north shore of Lake Superior.

3. For the paragraph underneath the subheading "Russian Federation PEMA" there is substituted:

The Russian Federation PEMA corresponds to the European territory of the Russian Federation. The European territory of the Russian Federation is a part of the territory of Russia within the administrative and geographical boundaries of the entities of the Russian Federation located in Eastern Europe bordering the Asian continent in

accordance with the conventional borderline that passes from north to south along the Ural Mountains, the border with Kazakhstan to the Caspian Sea, then along the State borders with Azerbaijan and Georgia in the North Caucasus to the Black Sea.

Q. Annex IV

1. For annex IV the following text is substituted:

Limit values for emissions of sulphur from stationary sources

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2. For the purpose of this section "emission limit value" (ELV) means the quantity of SO2 (or SOx where mentioned as such) contained in the waste gases from an installation that is not to be exceeded. Unless otherwise specified, it shall be calculated in terms of mass of SO2 (SOx, expressed as SO2) per volume of the waste gases (expressed as mg/m3), assuming standard conditions for temperature and pressure for dry gas (volume at 273.15 K, 101.3 kPa). With regard to the oxygen content of the waste gas, the values given in the tables below for each source category shall apply. Dilution for the purpose of lowering concentrations of pollutants in waste gases is not permitted. Start-up, shutdown and maintenance of equipment are excluded.

3. Compliance with ELVs, minimum desulphurization rates, sulphur recovery rates and sulphur content limit values shall be verified:

(a) Emissions shall be monitored through measurements or through calculations achieving at least the same accuracy. Compliance with ELVs shall be verified through continuous or discontinuous measurements, type approval, or any other technically sound method including verified calculation methods. In case of continuous measurements, compliance with the ELV is achieved if the validated monthly emission average does not exceed the limit value, unless otherwise specified for the individual source category. In case of discontinuous measurements or other appropriate determination or calculation procedures, compliance with the ELV is achieved if the mean value based on an appropriate number of measurements under representative conditions does not exceed the ELV. The inaccuracy of the measurement methods may be taken into account for verification purposes;

(b) In case of combustion plants applying the minimum rates of desulphurization set out in paragraph 5 (a) (ii), the sulphur content of the fuel shall also be regularly monitored and the competent authorities shall be informed of substantial changes in the type of fuel used. The desulphurization rates shall apply as monthly average values;

(c) Compliance with the minimum sulphur recovery rate shall be verified through regular measurements or any other technically sound method;

(d) Compliance with the sulphur limit values for gas oil shall be verified through regular targeted measurements.

4. Monitoring of relevant polluting substances and measurements of Õprocess parametersÕ, as well as the quality assurance of automated measuring systems and theÕ reference measurements to calibrate those Õsystems, shall be carried out in accordance with European Committee for Standardization (CEN) standards. If CEN standards are not available, International Organization for Standardization (ISO) standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply.

5. The following subparagraphs set out special provisions for combustion plants referred to in paragraph 7:

(a) A Party may derogate from the obligation to comply with the emission limit values provided for in paragraph 7 in the following cases:

(i) For a combustion plant which to this end normally uses low-sulphur fuel, in cases where the operator is unable to comply with those limit values because of an interruption in the supply of low-sulphur fuel resulting from a serious shortage;

(ii) For a combustion plant firing indigenous solid fuel, which cannot comply with the emission limit values provided for in paragraph 7, instead at least the following limit values for the rates of desulphurization have to be met:

(aa) Existing plants: 50–100 MWth: 80%;

(bb) Existing plants: 100–300 MWth: 90%;

(cc) Existing plants: > 300 MWth: 95%;

(dd) New plants: 50–300 MWth: 93%;

(ee) New plants: > 300 MWth: 97%;

(iii) For combustion plants normally using gaseous fuel which have to resort exceptionally to the use of other fuels because of a sudden interruption in the supply of gas and for this reason would need to be equipped with a waste gas purification facility;

(iv) For existing combustion plants not operated more than 17,500 operating hours, starting from 1 January 2016 and ending no later than 31 December 2023;

(v) For existing combustion plants using solid or liquid fuels not operated more than 1,500 operating hours per year as a rolling average over a period of five years, instead the following ELVs apply:

(aa) For solid fuels: 800 mg/m^3;

(bb) For liquid fuels: 850 mg/m^3 for plants with a rated thermal input not exceeding 300 MWth and 400 mg/m^3 for plants with a rated thermal input greater than 300 MWth;

(b) Where a combustion plant is extended by at least 50 MWth, the ELV specified in paragraph 7 for new installations shall apply to the extensional part affected by the change. The ELV is calculated as an average weighted by the actual thermal input for both the existing and the new part of the plant;

(c) Parties shall ensure that provisions are made for procedures relating to malfunction or breakdown of the abatement equipment;

(d) In the case of a multi-fuel firing combustion plant involving the simultaneous use of two or more fuels, the ELV shall be determined as the weighted average of the ELVs for the individual fuels, on the basis of the thermal input delivered by each fuel.

6. Parties may apply rules by which combustion plants and process plants within a mineral oil refinery may be exempted from compliance with the individual SO2 limit values set out in this annex, provided that they are complying with a bubble SO2 limit value determined on the basis of the best available techniques.

7. Combustion plants with a rated thermal input exceeding 50 MWth[1]:

[1] The rated thermal input of the combustion plant is calculated as the sum of the input of all units connected to a common stack. Individual units below 15 MWth shall not be considered when calculating the total rated thermal input.

Table 1

Limit values for SO2 emissions from combustion plants[a]

Fuel type	*Thermal input (MWth)*	*ELV for SO_2 mg/m³* [b]
Solid fuels	50–100	New plants: 400 (coal, lignite and other solid fuels) 300 (peat) 200 (biomass)
		Existing plants: 400 (coal, lignite and other solid fuels) 300 (peat) 200 (biomass)
	100–300	New plants: 200 (coal, lignite and other solid fuels) 300 (peat) 200 (biomass)
		Existing plants: 250 (coal, lignite and other solid fuels) 300 (peat) 200 (biomass)
	>300	New plants: 150 (coal, lignite and other solid fuels) (FBC: 200) 150 (peat) (FBC: 200) 150 (biomass)
		Existing plants: 200 (coal, lignite and other solid fuels) 200 (peat) 200 (biomass)
Liquid fuels	50–100	New plants: 350
		Existing plants: 350
	100–300	New plants: 200
		Existing plants: 250
	>300	New plants: 150
		Existing plants: 200

Fuel type	*Thermal input (MWth)*	*ELV for SO_2 mg/m³ [b]*
Gaseous fuels in general	>50	New plants: 35 Existing plants: 35
Liquefied gas	>50	New plants: 5 Existing plants: 5
Coke oven gas or blast furnace gas	>50	New plants: 200 for blast furnace gas 400 for coke oven gas Existing plants: 200 for blast furnace gas 400 for coke oven gas
Gasified refinery residues	> 50	New plants: 35 Existing plants: 800

Note: FBC = fluidized bed combustion (circulating, pressurized, bubbling).

a In particular, the ELVs shall not apply to:

- Plants in which the products of combustion are used for direct heating, drying, or any other treatment of objects or materials;
- Post-combustion plants designed to purify the waste gases by combustion which are not operated as independent combustion plants;
- Facilities for the regeneration of catalytic cracking catalysts;
- Facilities for the conversion of hydrogen sulphide into sulphur;
- Reactors used in the chemical industry;
- Coke battery furnaces;
- Cowpers;
- Recovery boilers within installations for the production of pulp;
- Waste incinerators; and
- Plants powered by diesel, petrol or gas engines or by combustion turbines, irrespective of the fuel used.

b The O2 reference content is 6% for solid fuels and 3% for liquid and gaseous fuels.

8. Gas oil:

Table 2
Limit values for the sulphur content of gas oil[a]

	Sulphur content (per cent by weight)
Gas oil	< 0.10

a "Gas oil" means any petroleum-derived liquid fuel, excluding marine fuel, falling within CN code 2710 19 25, 2710 19 29, 2710 19 45 or 2710 19 49, or any petroleum-derived liquid fuel, excluding marine fuel, of which less than 65% by volume (including losses) distils at 250° C and of which at least 85% by volume (including losses) distils at 350° C by the ASTM D86 method. Diesel fuels, i.e., gas oils falling within CN code 2710 19 41 and used for self-propelling vehicles, are excluded from this definition. Fuels used in non-road mobile machinery and agricultural tractors are also excluded from this definition.

9. Mineral oil and gas refineries:

Sulphur recovery units: for plants that produce more than 50 Mg of sulphur a day:

Table 3
Limit value expressed as a minimum sulphur recovery rate of sulphur recovery units

Plant type	*Minimum sulphur recovery rate [a] (%)*
New plant	99.5
Existing plant	98.5

a The sulphur recovery rate is the percentage of the imported H2S converted to elemental sulphur as a yearly average.

10. Titanium dioxide production:

Table 4
Limit values for SOx emissions released from titanium dioxide production (annual average)

Plant type	*ELV for SO_x (expressed as SO_2) (kg/t of TiO_2)*
Sulphate process, total emission	6
Chloride process, total emission	1.7

B. Canada

11. Limit values for controlling emissions of sulphur oxides will be determined for stationary sources, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions, and the documents below:

(a) Order Adding Toxic Substances to Schedule 1 to the Canadian Environmental Act, 1999. SOR/2011-34;

(b) Proposed Regulation, Order Adding Toxic Substances to Schedule 1 to the Canadian Environmental Protection Act, 1999;

(c) New Source Emission Guidelines for Thermal Electricity Generation;

(d) National Emission Guidelines for Stationary Combustion Turbines. PN1072; and

(e) Operating and Emission Guidelines for Municipal Solid Waste Incinerators. PN1085.

C. United States of America

12. Limit values for controlling emissions of sulphur dioxide from stationary sources in the following stationary source categories, and the sources to which they apply, are specified in the following documents:

(a) Electric Utility Steam Generating Units — 40 Code of Federal Regulations (C.F.R.) Part 60, Subpart D, and Subpart Da;

(b) Industrial-Commercial-Institutional Steam Generating Units — 40 C.F.R. Part 60, Subpart Db, and Subpart Dc;

(c) Sulphuric Acid Plants — 40 C.F.R. Part 60, Subpart H;

(d) Petroleum Refineries — 40 C.F.R. Part 60, Subpart J and Subpart Ja;

(e) Primary Copper Smelters — 40 C.F.R. Part 60, Subpart P;

(f) Primary Zinc Smelters — 40 C.F.R. Part 60, Subpart Q;

(g) Primary Lead Smelters — 40 C.F.R. Part 60, Subpart R;

(h) Stationary Gas Turbines — 40 C.F.R. Part 60, Subpart GG;

(i) Onshore Natural Gas Processing — 40 C.F.R. Part 60, Subpart LLL;

(j) Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart Ea, and Subpart Eb;

(k) Hospital/Medical/Infectious Waste Incinerators — 40 C.F.R. Part 60, Subpart Ec;

(l) Stationary Combustion Turbines — 40 C.F.R. Part 60, Subpart KKKK;

(m) Small Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart AAAA;

(n) Commercial and Industrial Solid Waste Combustors — 40 C.F.R. Part 60, Subpart CCCC; and

(o) Other Solid Waste Combustors — 40 C.F.R. Part 60, Subpart EEEE.

R. Annex V

For annex V the following text is substituted:

Limit values for emissions of nitrogen oxides from stationary sources

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2. For the purpose of this section "emission limit value" (ELV) means the quantity of NOx (sum of NO and NO2, expressed as NO2) contained in the waste gases from an installation that is not to be exceeded. Unless otherwise specified, it shall be calculated in terms of mass of NOx per volume of the waste gases (expressed as mg/m3), assuming standard conditions for temperature and pressure for dry gas (volume at 273.15 K, 101.3 kPa). With regard to the oxygen content of the waste gas, the values

given in the tables below for each source category shall apply. Dilution for the purpose of lowering concentrations of pollutants in waste gases is not permitted. Start-up, shutdown and maintenance of equipment are excluded.

3. Emissions shall be monitored in all cases via measurements of NOx or through calculations or a combination of both achieving at least the same accuracy. Compliance with ELVs shall be verified through continuous or discontinuous measurements, type approval, or any other technically sound method including verified calculation methods. In case of continuous measurements, compliance with the ELVs is achieved if the validated monthly emission average does not exceed the limit values. In case of discontinuous measurements or other appropriate determination or calculation procedures, compliance with the ELVs is achieved if the mean value based on an appropriate number of measurements under representative conditions does not exceed the ELV. The inaccuracy of the measurement methods may be taken into account for verification purposes.

4. Monitoring of relevant polluting substances and measurements of Õprocess parametersÕ, as well as the quality assurance of automated measuring systems and theÕ reference measurements to calibrate those Õsystems, shall be carried out in accordance with CEN standards. If CEN standards are not available, ISO standards or national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply.

5. Special provisions for combustion plants referred to in paragraph 6:

(a) A Party may derogate from the obligation to comply with the ELVs provided for in paragraph 6 in the following cases:

(i) For combustion plants normally using gaseous fuel which have to resort exceptionally to the use of other fuels because of a sudden interruption in the supply of gas and for this reason would need to be equipped with a waste gas purification facility;

(ii) For existing combustion plants not operated more than 17,500 operating hours, starting from 1 January 2016 and ending no later than 31 December 2023; or

(iii) For existing combustion plants other than onshore gas turbines (covered by paragraph 7) using solid or liquid fuels not operated more than 1,500 operating hours per year as a rolling average over a period of five years, instead the following ELVs apply:

(aa) For solid fuels: 450 mg/m^3;

(bb) For liquid fuels: 450 mg/m^3.

(b) Where a combustion plant is extended by at least 50 MWth, the ELV specified in paragraph 6 for new installations shall apply to the extensional part affected by the change. The ELV is calculated as an average weighted by the actual thermal input for both the existing and the new part of the plant;

(c) Parties shall ensure that provisions are made for procedures relating to malfunction or breakdown of the abatement equipment;

(d) In the case of a multi-fuel firing combustion plant involving the simultaneous use of two or more fuels, the ELV shall be determined as the weighted average of the ELVs for the individual fuels, on the basis of the thermal input delivered by each fuel. Parties may apply rules by which combustion plants and process plants within a mineral oil refinery may be exempted from compliance with the individual NOx limit values set out in this annex, provided that they are complying with a bubble NOx limit value determined on the basis of the best available techniques.

6. Combustion plants with a rated thermal input exceeding 50 MWth[2]:

Table 1
Limit values for NOx emissions released from combustion plants[a]

Fuel type	*Thermal input (MWth)*	*ELV for NO_x (mg/m^3)*[b]
Solid fuels	50–100	New plants: 300 (coal, lignite and other solid fuels) 450 (pulverized lignite) 250 (biomass, peat)
		Existing plants: 300 (coal, lignite and other solid fuels) 450 (pulverized lignite) 300 (biomass, peat)
	100–300	New plants: 200 (coal, lignite and other solid fuels) 200 (biomass, peat)
		Existing plants: 200 (coal, lignite and other solid fuels) 250 (biomass, peat)
	>300	New plants: 150 (coal, lignite and other solid fuels) (general) 150 (biomass, peat) 200 (pulverized lignite)
		Existing plants: 200 (coal, lignite and other solid fuels) 200 (biomass, peat)

[2] The rated thermal input of the combustion plant is calculated as the sum of the input of all units connected to a common stack. Individual units below 15 MWth shall not be considered when calculating the total rated input.

Fuel type	*Thermal input (MWth)*	*ELV for NO_x (mg/m^3)[b]*
Liquid fuels	50–100	New plants: 300 Existing plants: 450
	100–300	New plants: 150 Existing plants: 200 (general) Existing plants within refineries and chemical installations: 450 (for firing of distillation and conversion residues from crude oil refining for own consumption in combustion plants and for firing liquid production residue as non-commercial fuel)
	>300	New plants: 100 Existing plants: 150 (general) Existing plants within refineries and chemical installations: 450 (for firing of distillation and conversion residues from crude oil refining for own consumption in combustion plants and for firing liquid production residue as non-commercial fuel (< 500 MWth))
Natural gas	50–300	New plants: 100 Existing plants: 100
	>300	New plants: 100 Existing plants: 100
Other gaseous fuels	>50	New plants: 200 Existing plants: 300

a In particular, the ELVs shall not apply to:

- Plants in which the products of combustion are used for direct heating, drying, or any other treatment of objects or materials;
- Post-combustion plants designed to purify the waste gases by combustion which are not operated as independent combustion plants;
- Facilities for the regeneration of catalytic cracking catalysts;
- Facilities for the conversion of hydrogen sulphide into sulphur;
- Reactors used in the chemical industry;
- Coke battery furnaces;
- Cowpers;
- Recovery boilers within installations for the production of pulp;
- Waste incinerators; and
- Plants powered by diesel, petrol or gas engines or by combustion turbines, irrespective of the fuel used.

b The O2 reference content is 6% for solid fuels and 3% for liquid and gaseous fuels.

7. Onshore combustion turbines with a rated thermal input exceeding 50 MWth: the NOx ELVs expressed in mg/m3 (at a reference O2 content of 15%) are to be applied to a single turbine. The ELVs in table 2 apply only above 70% load.

Table 2

Limit values for NOx emissions released from onshore combustion turbines (including Combined Cycle Gas turbines (CCGT))

Fuel type	*Thermal input (MWth)*	*ELV for NO_x (mg/m^3)[a]*
Liquid fuels (light and medium distillates)	> 50	New plants: 50 Existing plants: 90 (general) 200 (plants operating less than 1 500 hours a year)
Natural gas[b]	> 50	New plants: 50 (general)[d] Existing plants: 50 (general)[c,d] 150 (plants operating less than 1 500 hours per year)
Other gases	> 50	New plants: 50 Existing plants: 120 (general) 200 (plants operating less than 1 500 hours a year)

a Gas turbines for emergency use that operate less than 500 hours per year are not covered.

b Natural gas is naturally occurring methane with not more than 20% (by volume) of inert gases and other constituents.

c 75 mg/m3 in the following cases, where the efficiency of the gas turbine is determined at ISO base load conditions:

- Gas turbines, used in combined heat and power systems having an overall efficiency greater than 75%;
- Gas turbines used in combined cycle plants having an annual average overall electrical efficiency greater than 55%;
- Gas turbines for mechanical drives.

d For single gas turbines not falling into any of the categories mentioned under footnote c/, but having an efficiency greater than 35% — determined at ISO base load conditions — the ELV for NOx shall be 50 x η / 35 where η is the gas-turbine efficiency at ISO base load conditions expressed as a percentage.

8. Cement production:

Table 3

Limit values for NOx emissions released from cement clinker production[a]

Plant type	*ELV for NO_x (mg/m^3)*
General (existing and new installations)	500
Existing lepol and long rotary kilns in which no waste is co-incinerated	800

a Installations for the production of cement clinker in rotary kilns with a capacity >500 Mg/day or in other furnaces with a capacity >50 Mg/day. The O2 reference content is 10%.

9. Stationary engines:

Table 4

Limit values for NOx emissions released from new stationary engines

Engine type, power, fuel specification	*ELV [a,b,c] (mg/m³)*
Gas engines > 1 MWth	
Spark ignited (=Otto) engines all gaseous fuels	95 (enhanced lean burn) 190 (Standard lean burn or rich burn with catalyst)
Dual fuel engines > 1 MWth	
In gas mode (all gaseous fuels)	190
In liquid mode (all liquid fuels)[d]	
1–20 MWth	225
>20 MWth	225
Diesel engines > 5 MWth (compression ignition)	
Slow (< 300 rpm)/ Medium (300-1 200 rpm)/ speed	
5–20 MWth	
Heavy Fuel Oil (HFO) and bio-oils	225
Light Fuel Oil (LFO) and Natural Gas (NG)	190
>20 MWth	
HFO and bio-oils	190
LFO and NG	190
High speed (>1 200 rpm)	190

Note: The reference oxygen content is 15%[3]

a These ELVs do not apply to engines running less than 500 hours a year.

b Where Selective Catalytic Reduction (SCR) cannot currently be applied for technical and logistical reasons like on remote islands or where the availability of sufficient amounts of high quality fuel cannot be guaranteed, a transition period of 10 years after the entry into force of the present Protocol for a Party may be applied for diesel engines and dual fuel engines during which the following ELVs apply:

- Dual fuel engines: 1,850 mg/m³ in liquid mode; 380 mg/m3 in gas mode;
- Diesel engines — Slow (< 300 rpm) and Medium (300–1,200 rpm)/speed: 1,300 mg/m³ for engines between 5 and 20 MWth and 1,850 mg/m³ for engines > 20 MWth;
- Diesel engines — High speed (> 1200 rpm): 750 mg/m³.

c Engines running between 500 and 1,500 operational hours per year may be exempted from compliance with these ELVs in case they are applying primary measures to limit NOx emissions and meet the ELVs set out in footnote b;

d A Party may derogate from the obligation to comply with the emission limit values for combustion plants using gaseous fuel which have to resort exceptionally to the use of other fuels because of a sudden interruption in the supply of gas and for this reason would need to be equipped with a waste gas purification facility. The exception time period shall not exceed 10 days except where there it is an overriding need to maintain energy supplies.

[3] The conversion factor from the limit values in the current Protocol (at 5% oxygen content) is 2,66 (16/6). Thus, the limit value of:

- 190 mg/m^3 at 15 % O_2 corresponds to 500 mg/m^3 at 5 % O_2;
- 95 mg/m^3 at 15 % O_2 corresponds to 250 mg/m^3 at 5 % O_2;
- 225 mg/m^3 at 15 % O_2 corresponds to 600 mg/m^3 at 5 % O_2.

10. Iron ore sinter plants:

Table 5
Limit values for NOx emissions released from iron ore sinter plants

Plant type	*ELV for NO_x (mg/m^3)*
Sinter plants: New installation	400
Sinter plants: Existing installation	400

a Production and processing of metals: metal ore roasting or sintering installations, installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting with a capacity exceeding 2.5 Mg/hour, installations for the processing of ferrous metals (hot rolling mills > 20 Mg/hour of crude steel).

b As an exemption to paragraph 3, these ELVs should be considered as averaged over a substantial period of time.

11. Nitric acid production:

Table 6
Limit values for NOx emissions from nitric acid production excluding acid concentration units

Type of installations	*ELV for NO_x (mg/m^3)*
New installations	160
Existing installations	190

B. Canada

12. Limit values for controlling emissions of NOx will be determined for stationary sources, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions, and the documents below:

(a) New Source Emission Guidelines for Thermal Electricity Generation;

(b) National Emission Guidelines for Stationary Combustion Turbines. PN1072;

(c) National Emission Guidelines for Cement Kilns. PN1284;

(d) National Emission Guidelines for Industrial/Commercial Boilers and Heaters. PN1286;

(e) Operating and Emission Guidelines for Municipal Solid Waste Incinerators. PN1085;

(f) Management Plan for Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOCs) — Phase I. PN1066; and

(g) Operating and Emission Guidelines for Municipal Solid Waste Incinerators. PN1085.

C. United States of America

13. Limit values for controlling emissions of NOx from stationary sources in the following stationary source categories, and the sources to which they apply, are specified in the following documents:

(a) Coal-fired Utility Units — 40 Code of Federal Regulations (C.F.R.) Part 76;

(b) Electric Utility Steam Generating Units — 40 C.F.R. Part 60, Subpart D, and Subpart Da;

(c) Industrial-Commercial-Institutional Steam Generating Units — 40 C.F.R. Part 60, Subpart Db;

(d) Nitric Acid Plants — 40 C.F.R. Part 60, Subpart G;

(e) Stationary Gas Turbines — 40 C.F.R. Part 60, Subpart GG;

(f) Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart Ea, and Subpart Eb;

(g) Hospital/Medical/Infectious Waste Incinerators — 40 C.F.R. Part 60, Subpart Ec;

(h) Petroleum Refineries — 40 C.F.R. Part 60, Subpart J, and Subpart Ja;

(i) Stationary Internal Combustion Engines — Spark Ignition, 40 C.F.R. Part 60, Subpart JJJJ;

(j) Stationary Internal Combustion Engines — Compression Ignition, 40 C.F.R. Part 60, Subpart IIII;

(k) Stationary Combustion Turbines — 40 C.F.R. Part 60, Subpart KKKK;

(l) Small Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart AAAA;

(m) Portland Cement —40 C.F.R. Part 60, Subpart F;

(n) Commercial and Industrial Solid Waste Combustors — 40 C.F.R. Part 60, Subpart CCCC; and

(o) Other Solid Waste Combustors — 40 C.F.R. Part 60, Subpart EEEE.

S. Annex VI

For annex VI, the following text is substituted:

Limit values for emissions of volatile organic compounds from stationary sources

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2. This section of the present annex covers the stationary sources of VOC emissions listed in paragraphs 8 to 22 below. Installations or parts of installations for research, development and testing of new products and processes are not covered. Threshold values are given in the sector-specific tables below. They generally refer to solvent consumption or emission mass flow. Where one operator carries out several activities falling under the same subheading at the same installation on the same site, the solvent consumption or emission mass flow of such activities are added together. If no threshold value is indicated, the given limit value applies to all the installations concerned.

3. For the purpose of section A of the present annex:

(a) "Storage and distribution of petrol" means the loading of trucks, railway wagons, barges and seagoing ships at depots and mineral oil refinery dispatch stations, including vehicle refuelling at service stations;

(b) "Adhesive coating" means any activity in which an adhesive is applied to a surface, with the exception of adhesive coating and laminating associated with printing activity and wood and plastic lamination;

(c) "Wood and plastic lamination" means any activity to adhere together wood and/or plastic to produce laminated products;

(d) "Coating activity" means any activity in which a single or multiple application of a continuous film of coating is laid onto:

(i) New vehicles defined as vehicles of category M1 and of category N1 insofar as they are coated at the same installation as M1 vehicles;

(ii) Truck cabins, defined as the housing for the driver, and all integrated housing for the technical equipment of category N2 and N3 vehicles;

(iii) Vans and trucks defined as category N1, N2 and N3 vehicles, but excluding truck cabins;

(iv) Buses defined as category M2 and M3 vehicles;

(v) Other metallic and plastic surfaces including those of aeroplanes, ships, trains, etc.;

(vi) Wooden surfaces;

(vii) Textile, fabric, film and paper surfaces; and

(viii) Leather;

This source category does not include the coating of substrates with metals by electrophoretic or chemical spraying techniques. If the coating activity includes a step in which the same article is printed, that printing step is considered part of the coating activity. However, printing activities operated as a separate activity are not covered by this definition. In this definition:

- M1 vehicles are those used for the carriage of passengers and comprising not more than eight seats in addition to the driver's seat;

- M2 vehicles are those used for the carriage of passengers and comprising more than eight seats in addition to the driver's seat, and having a maximum mass not exceeding 5 Mg;

- M3 vehicles are those used for the carriage of passengers and comprising more than eight seats in addition to the driver's seat, and having a maximum mass exceeding 5 Mg;

- N1 vehicles are those used for the carriage of goods and having a maximum mass not exceeding 3.5 Mg;

- N2 vehicles are those used for the carriage of goods and having a maximum mass exceeding 3.5 Mg but not exceeding 12 Mg;

- N3 vehicles are those used for the carriage of goods and having a maximum mass exceeding 12 Mg;

(e) "Coil coating" means any activity where coiled steel, stainless steel, coated steel, copper alloys or aluminium strip is coated with either a film-forming or laminate coating in a continuous process;

(f) "Dry cleaning" means any industrial or commercial activity using VOCs in an installation to clean garments, furnishings and similar consumer goods with the exception of the manual removal of stains and spots in the textile and clothing industry;

(g) "Manufacturing of coatings, varnishes, inks and adhesives" means the manufacture of coating preparations, varnishes, inks and adhesives, and of intermediates as far as they are produced in the same installation by mixing pigments, resins and adhesive materials with organic solvents or other carriers. This category also includes dispersion, predispersion, realization of a certain viscosity or colour and packing the final products in containers;

(h) "Printing" means any activity of reproduction of text and/or images in which, with the use of an image carrier, ink is transferred onto a surface and applies to the following subactivities:

(i) Flexography: a printing activity using an image carrier of rubber or elastic photopolymers on which the printing inks are above the non-printing areas, using liquid inks that dry through evaporation;

(ii) Heat-set web offset: a web-fed printing activity using an image carrier in which the printing and non-printing areas are in the same plane, where web-fed means that the material to be printed is fed to the machine from a reel as distinct from separate sheets. The non-printing area is treated to attract water and thus reject ink. The printing area is treated to receive and transmit ink to the surface to be printed. Evaporation takes place in an oven where hot air is used to heat the printed material;

(iii) Publication rotogravure: rotogravure used for printing paper for magazines, brochures, catalogues or similar products, using toluene-based inks;

(iv) Rotogravure: a printing activity using a cylindrical image carrier in which the printing area is below the non-printing area, using liquid inks that dry through evaporation. The recesses are filled with ink and the surplus is cleaned off the non-printing area before the surface to be printed contacts the cylinder and lifts the ink from the recesses;

(v) Rotary screen printing: a web-fed printing process in which the ink is passed onto the surface to be printed by forcing it through a porous image carrier, in which the printing area is open and the non-printing area is sealed off, using liquid inks that dry only through evaporation. Web-fed means that the material to be printed is fed to the machine from a reel as distinct from separate sheets;

(vi) Laminating associated to a printing activity: the adhering of two or more flexible materials to produce laminates; and

(vii) Varnishing: an activity by which a varnish or an adhesive coating is applied to a flexible material for the purpose of later sealing the packaging material;

(i) "Manufacturing of pharmaceutical products" means chemical synthesis, fermentation, extraction, formulation and finishing of pharmaceutical products and, where carried out at the same site, the manufacture of intermediate products;

(j) "Conversion of natural or synthetic rubber" means any activity of mixing, crushing, blending, calendering, extruding and vulcanization of natural or synthetic rubber and additionally activities for the processing of natural or synthetic rubber to derive an end product;

(k) "Surface cleaning" means any activity except dry cleaning using organic solvents to remove contamination from the surface of material, including degreasing; a cleaning activity consisting of more than one step before or after any other processing step is considered as one surface-cleaning activity. The activity refers to the cleaning of the surface of products and not to the cleaning of process equipment;

(l) "Standard conditions" means a temperature of 273.15 K and a pressure of 101.3 kPa;

(m) "Organic compound" means any compound containing at least the element carbon and one or more of hydrogen, halogens, oxygen, sulphur, phosphorus, silicon or nitrogen, with the exception of carbon oxides and inorganic carbonates and bicarbonates;

(n) "Volatile organic compound" (VOC) means any organic compound as well as the fraction of creosote, having at 293.15 K a vapour pressure of 0.01 kPa or more, or having a corresponding volatility under the particular conditions of use;

(o) "Organic solvent" means any VOC which is used alone or in combination with other agents, and without undergoing a chemical change, to dissolve raw material, products or waste materials, or is used as a cleaning agent to dissolve contaminants, or as a dissolver, or as a dispersion medium, or as a viscosity adjuster, or as a surface tension adjuster, or a plasticizer, or as a preservative;

(p) "Waste gases" means the final gaseous discharge containing VOCs or other pollutants from a stack or from emission abatement equipment into air. The volumetric flow rates shall be expressed in m3/h at standard conditions;

(q) "Extraction of vegetable oil and animal fat and refining of vegetable oil" means the extraction of vegetable oil from seeds and other vegetable matter, the processing of dry residues to produce animal feed, and the purification of fats and vegetable oils derived from seeds, vegetable matter and/or animal matter;

(r) "Vehicle refinishing" means any industrial or commercial coating activity and associated degreasing activities performing:

(i) The original coating of road vehicles, or part of them, with refinishing-type materials, where this is carried out away from the original manufacturing line, or the coating of trailers (including semi-trailers);

(ii) Vehicle refinishing, defined as the coating of road vehicles, or part of them, carried out as part of vehicle repair, conservation or decoration outside manufacturing installations, is not covered by this annex. The products used as part of this activity are considered in annex XI;

(s) "Wood impregnation" means any activity giving a loading of preservative in timber;

(t) "Winding wire coating" means any coating activity of metallic conductors used for winding the coils in transformers and motors, etc.;

(u) "Fugitive emission" means any emission, not in waste gases, of VOCs into air, soil and water as well as, unless otherwise stated, solvents contained in any product; this includes uncaptured emissions of VOCs released to the outside environment via windows, doors, vents and similar openings. Fugitive emissions may be calculated on the basis of a solvent management plan (see appendix I to the present annex);

(v) "Total emission of VOCs" means the sum of fugitive emission of VOCs and emission of VOCs in waste gases;

(w) "Input" means the quantity of organic solvents and their quantity in preparations used when carrying out a process, including the solvents recycled inside and outside the installation, and which are counted every time they are used to carry out the activity;

(x) "Emission limit value" (ELV) means the maximum quantity of VOC (except methane) emitted from an installation which is not to be exceeded during normal operation. For waste gases, it is expressed in terms of mass of VOC per volume of waste gases (expressed as mg C/m3 unless specified otherwise), assuming standard conditions for temperature and pressure for dry gas. Gas volumes that are added to the waste gas for cooling or dilution purposes shall not be considered when determining the mass concentration of the pollutant in the waste gases. Emission limit values for waste gases are indicated as ELVc; emission limit values for fugitive emissions are indicated as ELVf;

(y) "Normal operation" means all periods of operation except start-up and shutdown operations and maintenance of equipment;

(z) "Substances harmful to human health" are subdivided into two categories:

(i) Halogenated VOCs that have possible risk of irreversible effects; or

(ii) Hazardous substances that are carcinogens, mutagens or toxic to reproduction or that may cause cancer, may cause heritable genetic damage, may cause cancer by inhalation, may impair fertility or may cause harm to the unborn child:

(aa) "Footwear manufacture" means any activity of producing complete footwear or part of it;

(bb) "Solvent consumption" means the total input of organic solvents into an installation per calendar year, or any other 12-month period, less any VOCs that are recovered for reuse.

4. The following requirements shall be satisfied:

(a) Emissions shall be monitored in all cases via measurements or through calculations[4] achieving at least the same accuracy. Compliance with ELVs shall be verified through continuous or discontinuous measurements, type approval, or any other technically sound method. For the emissions in waste gases, in case of continuous measurements, compliance with the ELVs is achieved if the validated daily emission average does not exceed the ELVs. In case of discontinuous measurements or other appropriate determination procedures, compliance with the ELVs is achieved if the average of all the readings or other procedures within one monitoring exercise does not exceed the limit values. The inaccuracy of the measurement methods may be taken into account for verification purposes. The fugitive and total ELVs apply as annual averages;

(b) The concentrations of air pollutants in gas-carrying ducts shall be measured in a representative way. Monitoring of relevant polluting substances and measurements of process parameters, as well as the quality assurance of automated systems and the reference measurements to calibrate those systems, shall be carried out in accordance with CEN standards. If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply.

5. The following ELVs apply for waste gases containing substances harmful to human health:

(a) 20 mg/m3 (expressed as the mass sum of individual compounds) for discharges of halogenated VOCs, which are assigned the following risk phrases: "suspected of causing cancer" and/or "suspected of causing genetic defects", where the mass flow of the sum of the considered compounds is greater than or equal to 100 g/h; and

(b) 2 mg/m3 (expressed as the mass sum of individual compounds) for discharges of VOCs, which are assigned the following risk phrases: "may cause cancer", "may cause genetic defects", "may cause cancer by inhalation", "may damage fertility", "may damage the unborn child", where the mass flow of the sum of the considered compounds is greater than or equal to 10 g/h.

6. For the source categories listed in paragraphs 9 to 22 where it is demonstrated that for an individual installation compliance with the fugitive emission limit value (ELVf) is not

[4] Methods of calculation will be reflected in guidance adopted by the Executive Body.

technically and economically feasible, a Party may exempt that installation provided that significant risks to human health or the environment are not expected and that the best available techniques are used.

7. The limit values for VOC emissions for the source categories defined in paragraph 3 shall be as specified in paragraphs 8 to 22 below.

8. Storage and distribution of petrol:

(a) Petrol storage installations at terminals, when above the threshold values mentioned in table 1, must be either:

(i) Fixed-roof tanks, which are connected to a vapour recovery unit meeting the ELVs set out in table 1; or

(ii) Designed with a floating roof, either external or internal, equipped with primary and secondary seals meeting the reduction efficiency set out in table 1;

(b) As a derogation from the above-mentioned requirements, fixed-roof tanks, which were in operation prior to 1 January 1996 and which are not connected to a vapour recovery unit, must be equipped with a primary seal which is achieving a reduction efficiency of 90%.

Table 1
Limit values for VOC emissions from the storage and distribution of petrol, excluding the loading of seagoing ships (stage I)

Activity	*Threshold value*	*ELV or reduction efficiency*
Loading and unloading of mobile container at terminals	5 000 m^3 petrol throughput annually	10g VOC/m^3 including methane[a]
Storage installations at terminals	Existing terminals or tank farms with a petrol throughput of 10 000 Mg/year or more	95 wt-%[b]
	New terminals (without thresholds except for terminals located in small remote islands with a throughput less than 5 000 Mg/year)	
Service stations	Petrol throughput larger than 100 m^3/year	0.01wt-% of the throughput[c]

a The vapour displaced by the filling of petrol storage tanks shall be displaced either into other storage tanks or into abatement equipment meeting the limit values in the table above.

b Reduction efficiency expressed in % compared to a comparable fixed-roof tank with no vapour-containment controls, i.e., with only a vacuum/pressure relief valve.

c Vapours displaced by the delivery of petrol into storage installations at service stations and in fixed-roof tanks used for the intermediate storage of vapours must be returned through a vapour-tight connection line to the mobile container delivering the petrol. Loading operations may not take place unless the arrangements are in place and properly functioning. Under these conditions, no additional monitoring of the compliance with the limit value is required.

Table 2

Limit values for VOC emissions for car refuelling at service station (stage II)

Threshold values	*Minimum vapour capture efficiency wt- %*[a]
New service station if its actual or intended throughput is greater than 500 m^3 per annum Existing service station if its actual or intended throughput is greater than 3 000 m^3 per annum as of 2019 Existing service station if its actual or intended throughput is greater than 500 m^3 per annum and which undergoes a major refurbishment	Equal to or greater than 85% wt-% with a vapour / petrol ration equal to or greater than 0.95 but less than or equal to 1.05 (v/v).

a The capture efficiency of the systems has to be certified by the manufacturer in accordance with relevant technical standards or type approval procedures.

9. Adhesive coating:

Table 3

Limit values for adhesive coating

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Footwear manufacture (solvent consumption > 5 Mg/year)	25[a] g VOC / pair of shoes
Other adhesive coating (solvent consumption 5–15 Mg/year)	ELVc = 50 mg[b] C/m^3 ELVf = 25 wt-% or less of the solvent input *Or* total ELV of 1.2 kg or less of VOC/kg of solid input
Other adhesive coating (solvent consumption 15–200 Mg/year)	ELVc = 50 mg[b] C/m^3 ELVf = 20 wt-% or less of the solvent input *Or* total ELV of 1 kg or less of VOC/kg of solid input
Other adhesive coating (solvent consumption > 200 Mg/year)	ELVc = 50 mg[c] C/m^3 ELVf = 15 wt-% or less of the solvent input *Or* total ELV of 0.8 kg or less of VOC/kg of solid input

a Total ELVs are expressed in grams of solvent emitted per pair of complete footwear produced.

b If techniques are used which allow reuse of recovered solvent, the limit value shall be 150 mg C/m3.

c If techniques are used which allow reuse of recovered solvent, the limit value shall be 100 mg C/m3.

10. Wood and plastic lamination:

Table 4

Limit values for wood and plastic lamination

Activity and threshold	*ELV for VOC (yearly)*
Wood and plastic laminating (solvent consumption > 5 Mg/year)	Total ELV of 30 g VOC/m^2 of final product

11. Coating activities (vehicle coating industry):

Table 5
Limit values for coating activities in the vehicle industry

Activity and threshold	*ELV for VOC[a] (yearly for total ELV)*
Manufacture of cars (M1, M2) (solvent consumption > 15 Mg/year and ≤ 5 000 coated items a year or > 3 500 chassis built)	90 g VOC/m² or 1.5 kg/ body + 70 g/m²
Manufacture of cars (M1, M2) (solvent consumption 15–200 Mg/year and > 5 000 coated items a year)	*Existing installations*: 60g VOC/m² or 1.9 kg/ body + 41 g/m² *New installations*: 45 g VOC/m² or 1.3 kg/body + 33 g/m²
Manufacture of cars (M1, M2) (solvent consumption > 200 Mg/year and > 5 000 coated items a year)	35 g VOC/m² or 1 kg/body + 26 g/m² [b]
Manufacture of truck cabins (N1, N2, N3) (solvent consumption > 15 Mg/year and ≤ 5 000 coated items/year)	*Existing installations*: 85 g VOC/m² *New installations*: 65 g VOC/m²
Manufacture of truck cabins (N1, N2, N3) (solvent consumption 15–200 Mg/year and > 5 000 coated items a year)	*Existing installations*: 75 g VOC/m² *New installations*: 55 g VOC/m²
Manufacture of truck cabins (N1, N2, N3) (solvent consumption > 200 Mg/year and > 5 000 coated items a year)	55 g VOC/m²

Activity and threshold	*ELV for VOC[a] (yearly for total ELV)*
Manufacture of trucks and vans (solvent consumption > 15 Mg/year and ≤ 2 500 coated items a year)	*Existing installations*: 120 g VOC/m²
	New installations: 90 g VOC/m²
Manufacture of trucks and vans (solvent consumption 15–200 Mg/year and > 2 500 coated items a year)	*Existing installations*: 90 g VOC/m²
	New installations: 70 g VOC/m²
Manufacture of trucks and vans (solvent consumption > 200 Mg/year and > 2 500 coated items a year)	50 g VOC/m²
Manufacture of buses (solvent consumption > 15 Mg/year and ≤ 2 000 coated items a year)	*Existing installations*: 290 g VOC/m²
	New installations: 210 g VOC/m²
Manufacture of buses (solvent consumption 15–200 Mg/year and > 2 000 coated items a year)	*Existing installations*: 225 g VOC/m²
	New installations: 150 g VOC/m²
Manufacture of buses (solvent consumption > 200 Mg/year and > 2 000 coated items a year)	150 g VOC/m²

a The total limit values are expressed in terms of mass of organic solvent (g) emitted in relation to the surface area of product (m2). The surface area of the product is defined as the surface area calculated from the total electrophoretic coating area and the surface area of any parts that might be added in successive phases of the coating process which are coated with the same coatings. The surface of the electrophoretic coating area is calculated using the formula: (2 x total weight of product shell)/(average thickness of metal sheet x density of metal sheet). The total ELVs defined in the table above refer to all process stages carried out at the same installation from electrophoretic coating, or any other kind of coating process through the final wax and polish of top-coating inclusive, as well as solvent used in cleaning of process equipment, including spray booths and other fixed equipment, both during and outside of production time.

b For existing plants achieving these levels may entail cross-media effects, high capital costs and long payback periods. Major step decreases in VOC emissions necessitate changing the type of paint system and/or the paint application system and/or the drying system and this usually involves either a new installation or a complete refurbishment of a paint shop and requires significant capital investment.

12. Coating activities (metal, textile, fabric, film, plastic, paper and wooden surfaces coating):

Table 6
Limit values for coating activities in various industrial sectors

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Wood coating (solvent consumption 15–25 Mg/year)	ELVc = 100[a] mg C/m³ ELVf = 25 wt-% or less of the solvent input *Or* total ELV of 1.6 kg or less of VOC/kg of solid input
Wood coating (solvent consumption 25–200 Mg/year)	ELVc = 50 mg C/m³ for drying and 75 mg C/m³ for coating ELVf = 20 wt-% or less of the solvent input *Or* total ELV of 1 kg or less of VOC/kg of solid input
Wood coating (solvent consumption >	ELVc = 50 mg C/m³ for drying and 75 mg C/m³ for coating ELVf = 15 wt-% or less of the solvent input

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
200 Mg/year)	*Or* total ELV of 0.75 kg or less of VOC/kg of solid input
Coating of metal and plastics (solvent consumption 5–15 Mg/year)	ELVc = 100[a,b] mg C/m^3 ELVf = 25[b] wt-% or less of the solvent input *Or* total ELV of 0.6 kg or less of VOC/kg of solid input
Other coating, including textile, fabric film and paper (excluding web screen printing for textiles, see printing) (solvent consumption 5–15 Mg/year)	ELVc = 100[a,b] mg C/m^3 ELVf = 25[b] wt-% or less of the solvent input *Or* total ELV of 1.6 kg or less of VOC/kg of solid input
Textile, fabric, film and paper coating (excluding web screen printing for textiles, see printing) (solvent consumption > 15 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b,c] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 1 kg or less of VOC/kg of solid input
Coating of plastic workpieces (solvent consumption 15–200 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 0.375 kg or less of VOC/kg of solid input

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Coating of plastic workpieces (solvent consumption > 200 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 0.35 kg or less of VOC/kg of solid input
Coating of metal surfaces (solvent consumption 15–200 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 0.375 kg or less of VOC/kg of solid input Exception for coatings in contact with food: Total ELV of 0.5825 kg or less of VOC/kg of solid input
Coating of metal surfaces (solvent consumption >200 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 0.33 kg or less of VOC/kg of solid input Exception for coatings in contact with food: Total ELV of 0.5825 kg or less of VOC/kg of solid input

a Limit value applies to coating applications and drying processes operated under contained conditions.

b If contained coating conditions are not possible (boat construction, aircraft coating, etc.), installations may be granted exemption from these values. The reduction scheme is then to be used, unless this option is not technically and economically feasible. In this case, the best available technique is used.

c If, for textile coating, techniques are used which allow reuse of recovered solvents, the limit value shall be 150 mg C/m3 for drying and coating together.

13. Coating activities (leather and winding wire coating):

Table 7
Limit values for leather and winding wire coating

Activity and threshold	*ELV for VOC(yearly for total ELV)*
Leather coating in furnishing and particular leather goods used as small consumer goods like bags, belts, wallets, etc. (solvent consumption > 10 Mg/year)	Total ELV of 150 g/m^2
Other leather coating (solvent consumption 10–25 Mg/year)	Total ELV of 85 g/m^2
Other leather coating (solvent consumption > 25 Mg/year)	Total ELV of 75 g/m^2
Winding wire coating (solvent consumption > 5 Mg/year)	Total ELV of 10 g/kg applies for installations where average diameter of wire ≤ 0,1 mm Total ELV of 5 g/kg applies for all other installations

14. Coating activities (coil coating):

Table 8
Limit values for coil coating

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Existing installation (solvent consumption 25–200 Mg/year)	ELVc = 50 mg[a] C/m^3 ELVf = 10 wt-% or less of the solvent input *Or* total ELV of 0.45 kg or less of VOC/kg of solid input

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Existing installation (solvent consumption > 200 Mg/year)	ELVc = 50 mg[a] C/m^3 ELVf = 10 wt-% or less of the solvent input *Or* total ELV of 0.45 kg or less of VOC/kg of solid input
New installation (solvent consumption 25–200 Mg/year)	ELVc = 50 mg C/m^3 [a] ELVf = 5 wt-% or less of the solvent input *Or* total ELV of 0.3 kg or less of VOC/kg of solid input
New installation (solvent consumption > 200 Mg/year)	ELVc = 50 mg[a] C/m^3 ELVf = 5 wt-% or less of the solvent input *Or* total ELV of 0.3 kg or less of VOC/kg of solid input

a If techniques are used which allow reuse of recovered solvent, the limit value shall be 150 mg C/m3.

15. Dry cleaning:

Table 9
Limit values for dry cleaning

Activity	*ELV for VOC[a,b] (yearly for total ELV)*
New and existing installations	Total ELV of 20 g VOC/kg

a Limit value for total emissions of VOCs calculated as mass of emitted VOC per mass of cleaned and dried product.

b This emission level can be achieved by using at least type IV machines or more efficient ones.

16. Manufacturing of coatings, varnishes, inks and adhesives:

Table 10
Limit values form manufacturing of coatings, varnishes, inks and adhesives

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
New and existing installations with solvent consumption between 100 and 1 000 Mg/year	ELVc = 150 mg C/m^3 ELVf[a] = 5 wt-% or less of the solvent input *Or* total ELV of 5 wt-% or less of the solvent input
New and existing installations with solvent consumption > 1 000 Mg/year	ELVc = 150 mg C/m^3 ELVf[a] = 3 wt-% or less of the solvent input *Or* total ELV of 3 wt-% or less of the solvent input

a The fugitive limit value does not include solvents sold as part of a preparation in a sealed container.

17. Printing activities (flexography, heat-set web offset, publication rotogravure, etc.):

Table 11
Limit values for printing activities

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Heat-set offset (solvent consumption 15–25 Mg/year)	ELVc = 100 mg C/m^3 ELVf = 30 wt-% or less of the solvent input[a]

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Heat-set offset (solvent consumption 25–200 Mg/year)	New and existing installations ELVc = 20 mg C/m^3 ELVf = 30 wt-% or less of the solvent input[a]
Heat-set offset (solvent consumption >200 Mg/year)	For new and upgraded presses Total ELV = 10 wt-% or less of the ink consumption[a] For existing *presses* Total ELV = 15 wt-% or less of the ink consumption[a]
Publication gravure (solvent consumption 25–200 Mg/year)	For new installations ELVc = 75 mg C/m^3 ELVf = 10 wt-% or less of the solvent input *Or* total ELV of 0.6 kg or less of VOC/kg of solid input For existing installations ELVc = 75 mg C/m^3 ELVf = 15 wt-% or less of the solvent input *Or* total ELV of 0.8 kg or less of VOC/kg of solid input

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Publication gravure (solvent consumption > 200 Mg/year)	For new installations Total ELV = 5 wt-% or less of the solvent input For existing installations Total ELV = 7 wt-% or less of the solvent input
Packaging rotogravure and flexography (solvent consumption 15–25 Mg/year)	ELVc = 100 mg C/m^3 ELVf = 25 wt-% or less of the solvent input *Or* total ELV of 1.2 kg or less of VOC/kg of solid input
Packaging rotogravure and flexography (solvent consumption 25–200 Mg/year) and rotary screen printing (solvent consumption > 30 Mg/year)	ELVc = 100 mg C/m^3 ELVf = 20 wt-% or less of the solvent input *Or* total ELV of 1.0 kg or less of VOC/kg of solid input
Packaging rotogravure and flexography (solvent consumption > 200 Mg/year)	*For plants with all machines connected to oxidation:* Total ELV = 0.5 kg VOC/kg of solid input *For plants with all machines connected to carbon adsorption:* Total ELV = 0.6 kg VOC/kg of solid input *For existing mixed plants where some existing machines may not be attached to an incinerator or solvent recovery:* Emissions from *the machines connected to oxidizers or carbon adsorption* are below the emission limits of 0.5 or 0.6 kg VOC/kg of solid input respectively. *For machines not connected to gas treatment:* use of low solvent or solvent free products, connection to waste gas treatment when there is spare capacity and preferentially run high solvent content work on machines connected to waste gas treatment. Total emissions below 1.0 kg VOC/kg of solid input

a Residual solvent in the finished product is not taken into account in the calculation of the fugitive emission.

18. Manufacturing of pharmaceutical products:

Table 12
Limit values for manufacturing of pharmaceutical products

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
New installations (solvent consumption > 50 Mg/year)	ELVc = 20 mg C/m^3 [a,b] ELVf = 5 wt-% or less of the solvent input[b]
Existing installations (solvent consumption > 50 Mg/year)	ELVc = 20 mg C/m^3 [a,c] ELVf = 15 wt-% or less of the solvent input[c]

a If techniques are used which allow reuse of recovered solvents, the limit value shall be 150 mg C/m3.

b A total limit value of 5% of solvent input may be applied instead of applying ELVc and ELVf.

c A total limit value of 15% of solvent input may be applied instead of applying ELVc and ELVf.

19. Conversion of natural or synthetic rubber:

Table 13
Limit values for conversion of natural or synthetic rubber

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
New and existing installations: conversion of natural or synthetic rubber (solvent consumption > 15 Mg/year)	ELVc = 20 mg C/m^3 [a] ELVf = 25 wt-% of solvent input[b] *Or* total ELV = 25 wt-% of solvent input

a If techniques are used which allow reuse of recovered solvent, the limit value shall be 150 mg C/m3.

b The fugitive limit does not include solvents sold as part of a preparation in a sealed container.

20. Surface cleaning:

Table 14
Limit values for surface cleaning

Activity and threshold	*Threshold value for solvent consumption (Mg/year)*	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*	
Surface cleaning using substances mentioned in paragraph 3 (z) (i) of this annex	1–5	ELVc = 20 mg expressed as the mass sum of individual compounds/m^3	ELVf = 15 wt-% of solvent input
	> 5	ELVc = 20 mg expressed as the mass sum of individual compounds/m^3	ELVf = 10 wt-% of solvent input
Other surface cleaning	2–10	ELVc = 75 mg C/m^3 [a]	ELVf = 20 wt-%[a] of solvent input
	> 10	ELVc = 75 mg C/m^3 [a]	ELVf = 15 wt-%[a] of solvent input

a Installations for which the average organic solvent content of all cleaning material used does not exceed 30 wt-% are exempt from applying these values.

21. Vegetable oil and animal fat extraction and vegetable oil refining processes:

Table 15
Limit values for extraction of vegetable and animal fat and refining of vegetable oil

Activity and threshold	*ELV for VOC (yearly for total ELV)*	
New and existing installations (solvent consumption > 10 Mg/year)	Total ELV (kg VOC/Mg product)	
	Animal fat:	1.5
	Castor:	3.0
	Rape seed:	1.0
	Sunflower seed:	1.0
	Soya beans (normal crush):	0.8
	Soya beans (white flakes):	1.2
	Other seeds and vegetable material:	3.0[a]
	All fractionation processes, excluding degumming:[b]	1.5
	Degumming:	4.0

a Limit values for total emissions of VOCs from installations treating single batches of seeds or other vegetable material shall be set case by case by a Party on the basis of the best available techniques.

b The removal of gum from the oil.

22. Impregnation of wood:

Table 16
Limit values for impregnation of wood

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Wood impregnation (solvent consumption 25–200 Mg/year)	ELVc = 100[a] mg C/m^3 ELVf = 45 wt-% or less of the solvent input *Or* 11 kg or less of VOC/m^3
Wood impregnation (solvent consumption > 200 Mg/year)	ELVc = 100[a] mg C/m^3 ELVf = 35 wt-% or less of the solvent input *Or* 9 kg or less of VOC/m^3

a Does not apply to impregnation with creosote.

B. Canada

23. Limit values for controlling emissions of VOCs will be determined for stationary sources, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions, and the documents below:

(a) VOC Concentration Limits for Architectural Coatings Regulations — SOR/2009-264;

(b) VOC Concentration Limits for Automotive Refinishing Products. SOR/2009-197;

(c) Proposed regulations for VOC Concentrations Limits for Certain Products;

(d) Guidelines for the Reduction of Ethylene Oxide Releases from Sterilization Applications;

(e) Environmental Guideline for the Control of Volatile Organic Compounds Process Emissions from New Organic Chemical Operations. PN1108;

(f) Environmental Code of Practice for the Measurement and Control of Fugitive VOC Emissions from Equipment Leaks. PN1106;

(g) A Program to Reduce Volatile Organic Compound Emissions by 40 Percent from Adhesives and Sealants. PN1116;

(h) A Plan to Reduce VOC Emissions by 20 Percent from Consumer Surface Coatings. PN1114;

(i) Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks. PN1180;

(j) Environmental Code of Practice for Vapour Recovery during Vehicle Refueling at Service Stations and Other Gasoline Dispersing Facilities. PN1184;

(k) Environmental Code of Practice for the Reduction of Solvent Emissions from Commercial and Industrial Degreasing Facilities. PN1182;

(l) New Source Performance Standards and Guidelines for the Reduction of Volatile Organic Compound Emissions from Canadian Automotive Original Equipment Manufacturer (OEM) Coating Facilities. PN1234;

(m) Environmental Guideline for the Reduction of Volatile Organic Compound Emissions from the Plastics Processing Industry. PN1276;

(n) National Action Plan for the Environmental Control of Ozone-Depleting Substances (ODS) and Their Halocarbon Alternatives. PN1291;

(o) Management Plan for Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOCs) — Phase I. PN1066;

(p) Environmental Code of Practice for the Reduction of Volatile Organic Compound Emissions from the Commercial/Industrial Printing Industry. PN1301;

(q) Recommended CCME[5] Standards and Guidelines for the Reduction of VOC Emissions from Canadian Industrial Maintenance Coatings. PN1320; and

(r) Guidelines for the Reduction of VOC Emissions in the Wood Furniture Manufacturing Sector. PN1338.

C. United States of America

24. Limit values for controlling emissions of VOCs from stationary sources in the following stationary source categories, and the sources to which they apply, are specified in the following documents:

(a) Storage Vessels for Petroleum Liquids — 40 Code of Federal Regulations (C.F.R.) Part 60, Subpart K, and Subpart Ka;

(b) Storage Vessels for Volatile Organic Liquids — 40 C.F.R. Part 60, Subpart Kb;

(c) Petroleum Refineries — 40 C.F.R. Part 60, Subpart J;

(d) Surface Coating of Metal Furniture — 40 C.F.R. Part 60, Subpart EE;

(e) Surface Coating for Automobile and Light Duty Trucks — 40 C.F.R. Part 60, Subpart MM;

(f) Publication Rotogravure Printing — 40 C.F.R. Part 60, Subpart QQ;

(g) Pressure Sensitive Tape and Label Surface Coating Operations — 40 C.F.R. Part 60, Subpart RR;

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5 Canadian Council of Ministers of the Environment.

(h) Large Appliance, Metal Coil and Beverage Can Surface Coating — 40 C.F.R. Part 60, Subpart SS, Subpart TT and Subpart WW;

(i) Bulk Gasoline Terminals — 40 C.F.R. Part 60, Subpart XX;

(j) Rubber Tire Manufacturing — 40 C.F.R. Part 60, Subpart BBB;

(k) Polymer Manufacturing — 40 C.F.R. Part 60, Subpart DDD;

(l) Flexible Vinyl and Urethane Coating and Printing — 40 C.F.R. Part 60, Subpart FFF;

(m) Petroleum Refinery Equipment Leaks and Wastewater Systems — 40 C.F.R. Part 60, Subpart GGG and Subpart QQQ;

(n) Synthetic Fiber Production — 40 C.F.R. Part 60, Subpart HHH;

(o) Petroleum Dry Cleaners — 40 C.F.R. Part 60, Subpart JJJ;

(p) Onshore Natural Gas Processing Plants — 40 C.F.R. Part 60, Subpart KKK;

(q) SOCMI Equipment Leaks, Air Oxidation Units, Distillation Operations and Reactor Processes — 40 C.F.R. Part 60, Subpart VV, Subpart III, Subpart NNN and Subpart RRR;

(r) Magnetic Tape Coating — 40 C.F.R. Part 60, Subpart SSS;

(s) Industrial Surface Coatings — 40 C.F.R. Part 60, Subpart TTT;

(t) Polymeric Coatings of Supporting Substrates Facilities — 40 C.F.R. Part 60, Subpart VVV;

(u) Stationary Internal Combustion Engines — Spark Ignition, 40 C.F.R. Part 60, Subpart JJJJ;

(v) Stationary Internal Combustion Engines — Compression Ignition, 40 C.F.R. Part 60, Subpart IIII and

(w) New and in-use portable fuel containers — 40 C.F.R. Part 59, Subpart F.

25. Limit values for controlling emissions of VOC from sources subject to National Emission Standards for Hazardous Air Pollutants (HAPs) are specified in the following documents:

(a) Organic HAPs from the Synthetic Organic Chemical Manufacturing Industry — 40 C.F.R. Part 63, Subpart F;

(b) Organic HAPs from the Synthetic Organic Chemical Manufacturing Industry: Process Vents, Storage Vessels, Transfer Operations, and Wastewater — 40 C.F.R. Part 63, Subpart G;

(c) Organic HAPs: Equipment Leaks — 40 C.F.R. Part 63, Subpart H;

(d) Commercial ethylene oxide sterilizers — 40 C.F.R. Part 63, Subpart O;

(e) Bulk gasoline terminals and pipeline breakout stations — 40 C.F.R. Part 63, Subpart R;

(f) Halogenated solvent degreasers — 40 C.F.R. Part 63, Subpart T;

(g) Polymers and resins (Group I) — 40 C.F.R. Part 63, Subpart U;

(h) Polymers and resins (Group II) — 40 C.F.R. Part 63, Subpart W;

(i) Secondary lead smelters — 40 C.F.R. Part 63, Subpart X;

(j) Marine tank vessel loading — 40 C.F.R. Part 63, Subpart Y;

(k) Petroleum refineries — 40 C.F.R. Part 63, Subpart CC;

(l) Offsite waste and recovery operations — 40 C.F.R. Part 63, Subpart DD;

(m) Magnetic tape manufacturing — 40 C.F.R. Part 63, Subpart EE;

(n) Aerospace manufacturing — 40 C.F.R. Part 63, Subpart GG;

(o) Oil and natural gas production — 40 C.F.R. Part 63, Subpart HH;

(p) Ship building and ship repair — 40 C.F.R. Part 63, Subpart II;

(q) Wood furniture — 40 C.F.R. Part 63, Subpart JJ;

(r) Printing and publishing — 40 C.F.R. Part 63, Subpart KK;

(s) Pulp and paper II (combustion) — C.F.R. Part 63, Subpart MM;

(t) Storage tanks — 40 C.F.R. Part 63, Subpart OO;

(u) Containers — 40 C.F.R. Part 63, Subpart PP;

(v) Surface impoundments — 40 C.F.R. Part 63, Subpart QQ;

(w) Individual drain systems — 40 C.F.R. Part 63, Subpart RR;

(x) Closed vent systems — 40 C.F.R. Part 63, Subpart SS;

(y) Equipment leaks: control level 1 — 40 C.F.R. Part 63, Subpart TT;

(z) Equipment leaks: control level 2 — 40 C.F.R. Part 63, Subpart UU;

(aa) Oil-Water Separators and Organic-Water Separators — 40 C.F.R. Part 63, Subpart VV;

(bb) Storage Vessels (Tanks): Control Level 2 — 40 C.F.R. Part 63, Subpart WW;

(cc) Ethylene Manufacturing Process Units — 40 C.F.R. Part 63, Subpart XX;

(dd) Generic Maximum Achievable Control Technology Standards for several categories — 40 C.F.R. Part 63, Subpart YY;

(ee) Hazardous waste combustors — 40 C.F.R. Part 63, Subpart EEE;

(ff) Pharmaceutical manufacturing — 40 C.F.R. Part 63, Subpart GGG;

(gg) Natural Gas Transmission and Storage — 40 C.F.R. Part 63, Subpart HHH;

(hh) Flexible Polyurethane Foam Production — 40 C.F.R. Part 63, Subpart III;

(ii) Polymers and Resins: group IV — 40 C.F.R. Part 63, Subpart JJJ;

(jj) Portland cement manufacturing — 40 C.F.R. Part 63, Subpart LLL;

(kk) Pesticide active ingredient production — 40 C.F.R. Part 63, Subpart MMM;

(ll) Polymers and resins: group III — 40 C.F.R. Part 63, Subpart OOO;

(mm) Polyether polyols — 40 C.F.R. Part 63, Subpart PPP;

(nn) Secondary aluminum production — 40 C.F.R. Part 63, Subpart RRR;

(oo) Petroleum refineries — 40 C.F.R. Part 63, Subpart UUU;

(pp) Publicly owned treatment works — 40 C.F.R. Part 63, Subpart VVV;

(qq) Nutritional Yeast Manufacturing — 40 C.F.R. Part 63, Subpart CCCC;

(rr) Organic liquids distribution (non-gasoline) — 40 C.F.R. Part 63, Subpart EEEE;

(ss) Miscellaneous organic chemical manufacturing — 40 C.F.R. Part 63, Subpart FFFF;

(tt) Solvent Extraction for Vegetable Oil Production — 40 C.F.R. Part 63, Subpart GGGG;

(uu) Auto and Light Duty Truck Coatings — 40 C.F.R. Part 63, Subpart IIII;

(vv) Paper and Other Web Coating — 40 C.F.R. Part 63, Subpart JJJJ;

(ww) Surface Coatings for Metal Cans — 40 C.F.R. Part 63, Subpart KKKK;

(xx) Miscellaneous Metal Parts and Products Coatings — 40 C.F.R. Part 63, Subpart MMMM;

(yy) Surface Coatings for Large Appliances — 40 C.F.R. Part 63, Subpart NNNN;

(zz) Printing, Coating and Dyeing of Fabric — 40 C.F.R. Part 63, Subpart OOOO;

(aaa) Surface Coating of Plastic Parts and Products — 40 C.F.R. Part 63, Subpart PPPP;

(bbb) Surface Coating of Wood Building Products — 40 C.F.R. Part 63, Subpart QQQQ;

(ccc) Metal Furniture Surface Coating — 40 C.F.R. Part 63, Subpart RRRR;

(ddd) Surface coating for metal coil — 40 C.F.R. Part 63, Subpart SSSS;

(eee) Leather finishing operations — 40 C.F.R. Part 63, Subpart TTTT;

(fff) Cellulose products manufacturing — 40 C.F.R. Part 63, Subpart UUUU;

(ggg) Boat manufacturing — 40 C.F.R. Part 63, Subpart VVVV;

(hhh) Reinforced Plastics and Composites Production — 40 C.F.R. Part 63, Subpart WWWW;

(iii) Rubber tire manufacturing — 40 C.F.R. Part 63, Subpart XXXX;

(jjj) Stationary Combustion Engines — 40 C.F.R. Part 63, Subpart YYYY;

(kkk) Stationary Reciprocating Internal Combustion Engines: Compression Ignition — 40 C.F.R. Part 63, Subpart ZZZZ;

(lll) Semiconductor manufacturing — 40 C.F.R. Part 63, Subpart BBBBB;

(mmm) Iron and steel foundries — 40 C.F.R. Part 63, Subpart EEEEE;

(nnn) Integrated iron and steel manufacturing — 40 C.F.R. Part 63, Subpart FFFFF;

(ooo) Asphalt Processing and Roofing Manufacturing — 40 C.F.R. Part 63, Subpart LLLLL;

(ppp) Flexible Polyurethane Foam Fabrication — 40 C.F.R. Part 63, Subpart MMMMM;

(qqq) Engine test cells/stands — 40 C.F.R. Part 63, Subpart PPPPP;

(rrr) Friction products manufacturing — 40 C.F.R. Part 63, Subpart QQQQQ;

(sss) Refractory products manufacturing — 40 C.F.R. Part 63, Subpart SSSSS;

(ttt) Hospital ethylene oxide sterilizers — 40 C.F.R. Part 63, Subpart WWWWW;

(uuu) Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities — 40 C.F.R. Part 63, Subpart BBBBBB;

(vvv) Gasoline Dispensing Facilities — 40 C.F.R. Part 63, Subpart CCCCCC;

(www) Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources — 40 C.F.R. Part 63, Subpart HHHHHH;

(xxx) Acrylic Fibers/Modacrylic Fibers Production (Area Sources) — 40 C.F.R. Part 63, Subpart LLLLLL;

(yyy) Carbon Black Production (Area Sources) — 40 C.F.R. Part 63, Subpart MMMMMM;

(zzz) Chemical Manufacturing Area Sources: Chromium Compounds — 40 C.F.R. Part 63, Subpart NNNNNN;

(aaaa) Chemical Manufacturing for Area Sources — 40 C.F.R. Part 63, Subpart VVVVVV;

(bbbb) Asphalt Processing and Roofing Manufacturing (Area Sources) — 40 C.F.R. Part 63, Subpart AAAAAAA; and

(cccc) Paints and Allied Products Manufacturing (Area Sources) — 40 C.F.R. Part 63, Subpart CCCCCCC.

Appendix
Solvent management plan

Introduction

1. This appendix to the annex on limit values for emissions of VOCs from stationary sources provides guidance on carrying out a solvent management plan. It identifies the principles to be applied (paragraph 2), provides a framework for the mass balance (paragraph 3) and provides an indication of the requirements for verification of compliance (paragraph 4).

Principles

2. The solvent management plan serves the following purposes:

(a) Verification of compliance, as specified in the annex; and

(b) Identification of future reduction options.

Definitions

3. The following definitions provide a framework for the mass balance exercise:

(a) Inputs of organic solvents:

- I1 The quantity of organic solvents or their quantity in preparations purchased that are used as input into the process in the time frame over which the mass balance is being calculated;
- I2 The quantity of organic solvents or their quantity in preparations recovered and reused as solvent input into the process. (The recycled solvent is counted every time it is used to carry out the activity.).

(b) Outputs of organic solvents:

- O1. Emission of VOCs in waste gases;
- O2. Organic solvents lost in water, if appropriate taking into account wastewater treatment when calculating O5;
- O3. The quantity of organic solvents that remains as contamination or residue in output of products from the process;
- O4. Uncaptured emissions of organic solvents to air. This includes the general ventilation of rooms, where air is released to the outside environment via windows, doors, vents and similar openings;
- O5. Organic solvents and/or organic compounds lost due to chemical or physical reactions (including, for example, those that are destroyed, e.g., by incineration or other waste-gas or wastewater, or captured, e.g., by adsorption, as long as they are not counted under O6, O7 or O8);
- O6. Organic solvents contained in collected waste;
- O7. Organic solvents, or organic solvents contained in preparations, that are sold or are intended to be sold as a commercially valuable product;
- O8. Organic solvents contained in preparations recovered for reuse but not as input into the process, as long as they are not counted under O7;
- O9. Organic solvents released in other ways.

Guidance on use of the solvent management plan for verification of compliance

4. The use of the solvent management plan will be determined by the particular requirement which is to be verified, as follows:

(a) Verification of compliance with the reduction option mentioned in paragraph 6 (a) of the annex, with a total limit value expressed in solvent emissions per unit product, or as otherwise stated in the annex:

(i) For all activities using the reduction option mentioned in paragraph 6 (a) of the annex, the solvent management plan should be put into effect annually to determine consumption. Consumption can be calculated by means of the following equation:

$$C = I1 - O8$$

A parallel exercise should also be undertaken to determine solids used in coating in order to derive the annual reference emission and the target emission each year;

(ii) For assessing compliance with a total limit value expressed in solvent emissions per unit product or as otherwise stated in the annex, the solvent management plan should be put into effect annually to determine emission of VOCs. Emission of VOCs can be calculated by means of the following equation:

$$E = F + O1$$

Where F is the fugitive emission of VOC as defined in subparagraph (b) (i) below. The emission figure should be divided by the relevant product parameter;

(b) Determination of fugitive emission of VOCs for comparison with fugitive emission values in the annex:

(i) Methodology: The fugitive emission of VOC can be calculated by means of the following equation:

$$F = I1 - O1 - O5 - O6 - O7 - O8$$

or

$$F = O2 + O3 + O4 + O9$$

This quantity can be determined by direct measurement of the quantities. Alternatively, an equivalent calculation can be made by other means, for instance by using the capture efficiency of the process. The fugitive emission value is expressed as a proportion of the input, which can be calculated by means of the following equation:

$$I = I1 + I2;$$

(ii) Frequency: Fugitive emission of VOCs can be determined by a short but comprehensive set of measurements. This need not to be done again until the equipment is modified.

T. Annex VII

For annex VII there is substituted the following:

Timescales under article 3

1. The timescales for the application of the limit values referred to in article 3, paragraphs 2 and 3, shall be:

(a) For new stationary sources, one year after the date of entry into force of the present Protocol for the Party in question; and

(b) For existing stationary sources, one year after the date of entry into force of the present Protocol for the Party in question or 31 December 2020, whichever is the later.

2. The timescales for the application of the limit values for fuels and new mobile sources referred to in article 3, paragraph 5, shall be the date of entry into force of the present Protocol for the Party in question or the dates associated with the measures specified in annex VIII, whichever is the later.

3. The timescales for the application of the limit values for VOCs in products referred to in article 3, paragraph 7, shall be one year after the date of entry into force of the present Protocol for the Party in question.

4. Notwithstanding paragraphs 1, 2 and 3, but subject to paragraph 5, a Party to the Convention that becomes a Party to the present Protocol between January 1, 2013, and December 31, 2019, may declare upon ratification, acceptance, approval of, or accession to, the present Protocol that it will extend any or all of the timescales for application of the limit values referred to in article 3, paragraphs 2, 3, 5 and 7, as follows:

(a) For existing stationary sources, up to fifteen years after the date of entry into force of the present Protocol for the Party in question;

(b) For fuels and new mobile sources, up to five years after the date of entry into force of the present Protocol for the Party in question; and

(c) For VOCs in products, up to five years after the date of entry into force of the present Protocol for the Party in question.

5. A Party that has made an election pursuant to article 3bis of the present Protocol with respect to annex VI and/or VIII may not also make a declaration pursuant to paragraph 4 applicable to the same annex.

U. Annex VIII

For annex VIII the following text is substituted:

Limit values for fuels and new mobile sources

Introduction

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

2. This annex specifies emission limit values for NOx, expressed as nitrogen dioxide (NO2) equivalents, for hydrocarbons, most of which are volatile organic compounds, for carbon monoxide (CO) and for particulate matter as well as environmental specifications for marketed fuels for vehicles.

3. The timescales for applying the limit values in this annex are laid down in annex VII.

A. Parties other than Canada and the United States of America

Passenger cars and light-duty vehicles

4. Limit values for power-driven vehicles with at least four wheels and used for the carriage of passengers (category M) and goods (category N) are given in table 1.

Heavy-duty vehicles

5. Limit values for engines for heavy-duty vehicles are given in tables 2 and 3 on the applicable test procedures.

Compression-ignition (CI) and spark-ignition (SI) non-road vehicles and machines

6. Limit values for agricultural and forestry tractors and other non-road vehicle/ machine engines are listed in tables 4 to 6.

7. Limit values for locomotives and railcars are listed in tables 7 and 8.

8. Limit values for inland waterway vessels are listed in table 9.

9. Limit values for recreational crafts are listed in table 10.

Motorcycles and mopeds

10. Limit values for motorcycles and mopeds are given in tables 11 and 12.

Fuel quality

11. Environmental quality specifications for petrol and diesel are given in tables 13 and 14.

Table 1

Limit values for passenger cars and light-duty vehicles

			Limit values[a]													
		Reference mass (RW) (kg)	*Carbon monoxide*		*Total hydrocarbons (HC)*		*NMVOC*		*Nitrogen oxides*		*Hydrocarbons and nitrogen oxides combined*		*Particulate matter*		*Number of particles*[a] *(P)*	
			L1 (g/km)		*L2 (g/km)*		*L3 (g/km)*		*L4 (g/km)*		*L2 + L4 (g/km)*		*L5 (g/km)*		*L6(#/km)*	
Category	*Class, application date**		*Petrol*	*Diesel*	*Petrol*	*Diesel*	*Petrol*	*Diesel*	*Petrol*	*Diesel*	*Petrol*	*Diesel*	*Petrol*	*Diesel*	*Petrol*	*Diesel*
Euro 5	M^b 1.1. 2014	All	1.0	0.50	0.10	–	0.068	–	0.06	0.18	–	0.23	0.0050	0.0050	–	$6.0x10^{11}$
	$N_1{}^c$ I, 1.1.2014	RW 1 305	1.0	0.50	0.10	–	0.068	–	0.06	0.18	–	0.23	0.0050	0.0050	–	$6.0x10^{11}$
	II, 1.1.2014	1 305 < RW≤ 1 760	1.81	0.63	0.13	–	0.090	–	0.075	0.235	–	0.295	0.0050	0.0050	–	$6.0x10^{11}$
	III, 1.1.2014	1 760 < RW	2.27	0.74	0.16	–	0.108	–	0.082	0.28	–	0.35	0.0050	0.0050	–	$6.0x10^{11}$
	N_2 1.1.2014		2.27	0.74	0.16	–	0.108	–	0.082	0.28	–	0.35	0.0050	0.0050	–	$6.0x10^{11}$
Euro 6	M^b 1.9.2015	All	1.0	0.50	0.10	–	0.068	–	0.06	0.08	–	0.17	0.0045	0.0045	$6.0x10^{11}$	$6.0x10^{11}$
	$N_1{}^c$ I,-1.9.2015	RW ≤1 305	1.0	0.50	0.10	–	0.068	–	0.06	0.08	–	0.17	0.0045	0.0045	$6.0x10^{11}$	$6.0x10^{11}$
	II, 1.9.2016	1 305 < RW≤ 1 760	1.81	0.63	0.13	–	0.090	–	0.075	0.105	–	0.195	0.0045	0.0045	$6.0x10^{11}$	$6.0x10^{11}$
	III, 1.9.2016	1 760 < RW	2.27	0.74	0.16	–	0.108	–	0.082	0.125	–	0.215	0.0045	0.0045	$6.0x10^{11}$	$6.0x10^{11}$
	N_2 1.9.2016		2.27	0.74	0.16	–	0.108	–	0.082	0.125	–	0.215	0.0045	0.0045	$6.0x10^{11}$	$6.0x10^{11}$

* The registration, sale and entry into service of new vehicles that fail to comply with the respective limit values shall be refused as from the dates given in the column.

a Test cycle specified by NEDC.

b Except vehicles whose maximum mass exceeds 2,500 kg.

c And those category M vehicles specified in note b·

Table 2

Limit values for heavy-duty vehicles steady-state cycle load-response tests

	Application date	*Carbon monoxide (g/kWh)*	*Hydro-carbons (g/kWh)*	*Total hydrocarbons (g/kWh)*	*Nitrogen oxides (g/kWh)*	*Particulate matter (g/kWh)*	*Smoke* (m^{-1})
B2 ("EURO V")[a]	1.10.2009	1.5	0.46	–	2.0	0.02	0.5
"EURO VI"[b]	31.12.2013	1.5	–	0.13	0.40	0.010	–

a Test cycle specified by the European steady-state cycle (ESC) and the European load-response (ELR) tests.

b Test cycle specified by the world heavy duty steady state cycle (WHSC).

Table 3

Limit values for heavy-duty vehicles — transient cycle tests

	*Application date**	*Carbon monoxide (g/kWh)*	*Total hydro-carbons (g/kWh)*	*Non-methane hydrocarbons (g/kWh)*	*Methane[a] (g/kWh)*	*Nitrogen oxides (g/kWh)*	*Particulates (g/kWh)[b]*
B2 "EURO V"[c]	1.10.2009	4.0	–	0.55	1.1	2.0	0.030
"EURO VI" (CI)[d]	31.12.2013	4.0	0.160	–	–	0.46	0.010
"EURO VI" (PI)[d]	31.12.2013	4.0	–	0.160	0.50	0.46	0.010

Note: PI = Positive ignition. CI = Compression ignition.

* The registration, sale and entry into service of new vehicles that fail to comply with the respective limit values shall be refused as from the dates given in the column.

a For natural gas engines only.

b Not applicable to gas-fuelled engines at stage B2.

c Test cycle specified by the European transient cycle (ETC) test

d Test cycle specified by the world heavy duty transient cycle (WHTC).

Table 4

Limit values for diesel engines for non-road mobile machines, agricultural and forestry tractors (stage IIIB)

Net power (P) (kW)	*Application date**	*Carbon monoxide (g/kWh)*	*Hydrocarbons (g/kWh)*	*Nitrogen oxides (g/kWh)*	*Particulate matter (g/kWh)*
$130 \leq P \leq 560$	31.12.2010	3.5	0.19	2.0	0.025
$75 \leq P < 130$	31.12.2011	5.0	0.19	3.3	0.025
$56 \leq P < 75$	31.12.2011	5.0	0.19	3.3	0.025
$37 \leq P < 56$	31.12.2012	5.0	4.7[a]	4.7[a]	0.025

* With effect from the given date and with the exception of machinery and engines intended for export to countries that are not parties to the present Protocol, Parties shall permit the registration, where applicable and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table.

Editor's note: This figure represents the sum of hydrocarbons and nitrogen oxides and was reflected in the final approved text by a single figure in a merged cell in the table. As this text does not include tables with dividing lines, the figure is repeated in each column for clarity.

Table 5

Limit values for diesel engines for non-road mobile machines, agricultural and forestry tractors (stage IV)

Net power (P) (kW)	*Application date**	*Carbon monoxide (g/kWh)*	*Hydrocarbons (g/kWh)*	*Nitrogen oxides (g/kWh)*	*Particulate matter (g/kWh)*

Net power (P) (kW)	*Application date**	*Carbon monoxide (g/kWh)*	*Hydrocarbons (g/kWh)*	*Nitrogen oxides (g/kWh)*	*Particulate matter (g/kWh)*
$130 \leq P \leq 560$	31.12.2013	3.5	0.19	0.4	0.025
$56 \leq P < 130$	31.12.2014	5.0	0.19	0.4	0.025

* With effect from the given date and with the exception of machinery and engines intended for export to countries that are not parties to the present Protocol, Parties shall permit the registration, where applicable and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table.

Table 6
Limit values for spark-ignition engines for non-road mobile machines

Hand-held engines		
Displacement (cm^3)	*Carbon monoxide (g/kWh)*	*Sum of hydrocarbons and oxides of nitrogen (g/kWh)*[a]
Disp < 20	805	50
20 ≤ disp. < 50	805	50
Disp ≥ 50	603	72
Non-hand-held engines		
Displacement (cm^3)	*Carbon monoxide (g/kWh)*	*Sum of hydrocarbons and oxides of nitrogen (g/kWh)*
Disp < 66	610	50
66 ≤ disp. < 100	610	40
100 ≤ disp. < 225	610	16.1
Disp ≥ 225	610	12.1

Note: With the exception of machinery and engines intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table.

a The NOx emissions for all engine classes must not exceed 10 g/kWh.

Table 7
Limit values for engines used for propulsion of locomotives

Net power (P) (kW)	*Carbon monoxide (g/kWh)*	*Hydrocarbons (g/kWh)*	*Nitrogen oxides (g/kWh)*	*Particulate matter (g/kWh)*
130 < P	3.5	0.19	2.0	0.025

Note: With the exception of machinery and engines intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table.

Table 8
Limit values for engines used for propulsion of railcars

Net power (P) (kW)	*Carbon monoxide (g/kWh)*	*Sum of hydrocarbons and oxides of nitrogen (g/kWh)*	*Particulate matter (g/kWh)*
130 < P	3.5	4.0	0.025

Table 9

Limit values for engines for propulsion of inland waterways vessels

Displacement (liters per cylinder/kW)	*Carbon monoxide (g/kWh)*	*Sum of hydrocarbons and oxides of nitrogen (g/kWh)*	*Particulate matter (g/kWh)*
Disp. < 0.9 Power ≥ 37 kW	5.0	7.5	0.4
0.9 ≤ disp. < 1.2	5.0	7.2	0.3
1.2 ≤ disp. < 2.5	5.0	7.2	0.2
2.5 ≤ disp. < 5.0	5.0	7.2	0.2
5.0 ≤ disp. < 15	5.0	7.8	0.27
15 ≤ disp. < 20 Power < 3 300 kW	5.0	8.7	0.5
15 ≤ disp. < 20 Power > 3 300 kW	5.0	9.8	0.5
20 ≤ disp. < 25	5.0	9.8	0.5
25 ≤ disp. < 30	5.0	11.0	0.5

Note: With the exception of machinery and engines intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table.

Table 10

Limit values for engines in recreational crafts

	CO (g/kWh) $CO = A + B/P^n_N$			*Hydrocarbons (HC) (g/kWh)* $HC = A + B/P^n_N$ [a]				
Engine type	*A*	*B*	*n*	*A*	*B*	*n*	*NO_x g/kWh*	*PM g/kWh*
2-stroke	150	600	1	30	100	0.75	10	Not Appl.
4-stroke	150	600	1	6	50	0.75	15	Not Appl.
CI	5	0	0	1.5	2	0.5	9.8	1

Abbreviation: Not Appl. = Not Applicable.

Note: With the exception of machinery and engines intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table.

a Where A, B and n are constants and PN is the rate engine power in kW and the emissions are measured in accordance with the harmonised standards.

Table 11

Limit values for motorcycles (> 50 cm3; > 45 km/h)

Engine size	*Limit values*			
Motorcycle < 150cc	HC NO_x = 0.15 g/km	=	0.8	g/km
Motorcycle > 150cc	HC NO_x = 0.15 g/km	=	0.3	g/km

Note: With the exception of vehicles intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market only if they meet the respective limit values set out in the table.

Table 12

Limit values for mopeds (<50 cm3; < 45 km/h)

	Limit values	
	CO (g/km)	*HC + NO_x (g/km)*
II	1.0 [a]	1.2

Note: With the exception of vehicles intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market only if they meet the respective limit values set out in the table.

a For 3- and 4-wheelers, 3.5 g/km.

Table 13

Environmental specifications for marketed fuels to be used for vehicles equipped with positive-ignition engines — Type: Petrol

		Limits	
Parameter	*Unit*	*Minimum*	*Maximum*
Research octane number		95	–
Motor octane number		85	–
Reid vapour pressure, summer period [a]	kPa	–	60
Distillation:			
Evaporated at 100°C	% v/v	46	–
Evaporated at 150°C	% v/v	75	–
Hydrocarbon analysis:			
- olefins	% v/v	–	18.0 [b]
- aromatics		–	35
- benzene		–	1
Oxygen content	% m/m	–	3.7
Oxygenates:			
- Methanol, stabilizing agents must be added	% v/v	–	3
- Ethanol, stabilizing agents may be necessary	% v/v	–	10
- Iso-propyl alcohol	% v/v	–	12
- Tert-butyl alcohol	% v/v	–	15
- Iso-butyl alcohol	% v/v	–	15
- Ethers containing 5 or more carbon atoms per molecule	% v/v	–	22
Other oxygenates [c]	% v/v	–	15
Sulphur content	mg/kg	–	10

a The summer period shall begin no later than 1 May and shall not end before 30 September. For Parties with arctic conditions the summer period shall begin no later than 1 June and not end before 31 August and the Reid Vapour Pressure (RVP) is limited to 70 kPa.

b Except for regular unleaded petrol (minimum motor octane number (MON) of 81 and minimum research octane number (RON) of 91), for which the maximum olefin content shall be 21% v/v. These limits shall not preclude the introduction on the market of a Party of another unleaded petrol with lower octane numbers than set out here.

c Other mono-alcohols with a final distillation point no higher than the final distillation point laid down in national specifications or, where these do not exist, in industrial specifications for motor fuels.

Table 14

Environmental specifications for marketed fuels to be used for vehicles equipped with compression-ignition engines — Type: Diesel fuel

Parameter	*Unit*	*Limits*	
		Minimum	*Maximum*
Cetane number		51	–
Density at 15° C	kg/m^3	–	845
Distillation point: 95%	°C	–	360
Polycyclic aromatic hydrocarbons	% m/m	–	8
Sulphur content	mg/kg	–	10

B. Canada

12. Limit values for controlling emissions from fuels and mobile sources will be determined, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions, and the documents below:

(a) Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations, SOR/2010–201;

(b) Marine Spark-Ignition Engine, Vessel and Off-Road Recreational Vehicle Emission Regulations, SOR/2011–10;

(c) Renewable Fuels Regulations, SOR/2010–189;

(d) Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals, SOR/2007–86;

(e) Off-Road Compression-Ignition Engine Emission Regulations, SOR/2005–32;

(f) On-Road Vehicle and Engine Emission Regulations, SOR/2003–2;

(g) Off-Road Small Spark-Ignition Engine Emission Regulations, SOR/2003–355;

(h) Sulphur in Diesel Fuel Regulations, SOR/2002–254;

(i) Gasoline and Gasoline Blend Dispensing Flow Rate Regulations SOR/2000–43;

(j) Sulphur in Gasoline Regulations, SOR/99–236;

(k) Benzene in Gasoline Regulations, SOR/97–493;

(l) Gasoline Regulations, SOR/90–247;

(m) Federal Mobile PCB Treatment and Destruction Regulations, SOR/90–5;

(n) Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products;

(o) Canada-Wide Standards for Benzene, Phase 2;

(p) Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks. PN 1180;

(q) Environmental Code of Practice for Vapour Recovery in Gasoline Distribution Networks. PN 1057;

(r) Environmental Code of Practice for Light Duty Motor Vehicle Emission Inspection and Maintenance Programs — 2nd Edition. PN 1293;

(s) Joint Initial Actions to Reduce Pollutant Emissions that Contribute to Particulate Matter and Ground-level Ozone; and

(t) Operating and Emission Guidelines for Municipal Solid Waste Incinerators. PN 1085.

C. United States of America

13. Implementation of a mobile source emission control programme for light-duty vehicles, light-duty trucks, heavy-duty trucks and fuels to the extent required by sections 202 (a), 202 (g) and 202 (h) of the Clean Air Act, as implemented through:

(a) Registration of fuels and fuel additives — 40 C.F.R Part 79;

(b) Regulation of fuels and fuel additives — 40 C.F.R Part 80, including: Subpart A — general provisions; Subpart B — controls and prohibitions; Subpart D — reformulated gasoline; Subpart H — gasoline sulphur standards; Subpart I — motor vehicle diesel fuel; non-road, locomotive, and marine diesel fuel; and ECA marine fuel; Subpart L — gasoline benzene; and

(c) Control of emissions from new and in-use highway vehicles and engines — 40 C.F.R Part 85 and Part 86.

14. Standards for non-road engines and vehicles are specified in the following documents:

(a) Fuel sulphur standards for non-road diesel engines — 40 C.F.R Part 80, Subpart I;

(b) Aircraft engines — 40 C.F.R Part 87;

(c) Exhaust emission standards for non-road diesel engines — Tier 2 and 3; 40 C.F.R Part 89;

(d) Non-road compression-ignition engines — 40 C.F.R Part 89 and Part 1039;

(e) Non-road and marine spark-ignition engines — 40 C.F.R Part 90, Part 91, Part 1045, and Part 1054;

(f) Locomotives — 40 C.F.R Part 92 and Part 1033;

(g) Marine compression-ignition engines — 40 C.F.R Part 94 and Part 1042;

(h) New large non-road spark-ignition engines — 40 C.F.R Part 1048;

(i) Recreational engines and vehicles — 40 C.F.R Part 1051;

(j) Control of evaporative emissions from new and in-use non-road and stationary equipment — 40 C.F.R. Part 1060;

(k) Engine testing procedures — 40 C.F.R Part 1065; and

(l) General compliance provisions for non-road programs — 40 C.F.R Part 1068.

V. Annex IX

1. The final sentence of paragraph 6 is deleted.
2. The final sentence of paragraph 9 is deleted.
3. Note 1 is deleted.

W. Annex X

1. A new annex X is added as follows:

Annex X
Limit values for emissions of particulate matter from stationary sources

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2. In this section only, "dust" and "total suspended particulate matter" (TSP) means the mass of particles, of any shape, structure or density, dispersed in the gas phase at the sampling point conditions which may be collected by filtration under specified conditions after representative sampling of the gas to be analysed, and which remain upstream of the filter and on the filter after drying under specified conditions.

3. For the purpose of this section, "emission limit value" (ELV) means the quantity of dust and/or TSP contained in the waste gases from an installation that is not to be exceeded. Unless otherwise specified, it shall be calculated in terms of mass of pollutant per volume of the waste gases (expressed as mg/m3), assuming standard conditions for temperature and pressure for dry gas (volume at 273.15 K, 101.3 kPa). With regard to the oxygen content of waste gas, the values given in the tables below for each source category shall apply. Dilution for the purpose of lowering concentrations of pollutants in waste gases is not permitted. Start-up, shutdown and maintenance of equipment are excluded.

4. Emissions shall be monitored in all cases via measurements or through calculations achieving at least the same accuracy. Compliance with limit values shall be verified through continuous or discontinuous measurements, type approval, or any other technically sound method including verified calculation methods. In case of continuous measurements, compliance with the limit value is achieved if the validated monthly emission average does not exceed the ELV. In case of discontinuous measurements or other appropriate determination or calculation procedures, compliance with the ELVs is achieved if the mean value based on an appropriate number of measurements under representative conditions does not exceed the value of the emission standard. The

inaccuracy of measurement methods may be taken into account for verification purposes.

5. Monitoring of relevant polluting substances and measurements of Õprocess parametersÕ, as well as the quality assurance of automated measuring systems and theÕ reference measurements to calibrate those Õsystems, shall be carried out in accordance with CEN standards. If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply.

6. Special provisions for combustion plants referred to in paragraph 7:

(a) A Party may derogate from the obligation to comply with the ELVs provided for in paragraph 7 in the following cases:

(i) For combustion plants normally using gaseous fuel which have to resort exceptionally to the use of other fuels because of a sudden interruption in the supply of gas and for this reason would need to be equipped with a waste gas purification facility;

(ii) For existing combustion plants not operated more than 17,500 operating hours, starting from 1 January 2016 and ending no later than 31 December 2023.

(b) Where a combustion plant is extended by at least 50 MWth, the ELV specified in paragraph 7 for new installations shall apply to the extensional part affected by the change. The ELV is calculated as an average weighted by the actual thermal input for both the existing and the new part of the plant;

(c) Parties shall ensure that provisions are made for procedures relating to malfunction or breakdown of the abatement equipment;

(d) In the case of a multi-fuel firing combustion plant involving the simultaneous use of two or more fuels, the ELV shall be determined as the weighted average of the ELVs for the individual fuels, on the basis of the thermal input delivered by each fuel.

7. Combustion plants with a rated thermal input exceeding 50 MWth[6]:

[6] The rated thermal input of the combustion plant is calculated as the sum of the input of all units connected to a common stack. Individual units below 15 MWth shall not be considered when calculating the total rated thermal input.

Table 1

Limit values for dust emissions from combustion plants[a]

Fuel type	*Thermal input (MWth)*	*ELV for dust (mg/m³)*[b]
Solid fuels	50–100	New plants: 20 (coal, lignite and other solid fuels) 20 (biomass, peat) Existing plants: 30 (coal, lignite and other solid fuels) 30 (biomass, peat)
	100–300	New plants: 20 (coal, lignite and other solid fuels) 20 (biomass, peat) Existing plants: 25 (coal, lignite and other solid fuels) 20 (biomass, peat)
	>300	New plants: 10 (coal, lignite and other solid fuels) 20 (biomass, peat) Existing plants: 20 (coal, lignite and other solid fuels) 20 (biomass, peat)
Liquid fuels	50–100	New plants: 20 Existing plants: 30 (in general) 50 (for the firing of distillation and conversion residues within refineries from the refining of crude oil for own consumption in combustion plants)
Liquid fuels	100–300	New plants: 20 Existing plants: 25 (in general) 50 (for the firing of distillation and conversion residues within refineries from the refining of crude oil for own consumption in combustion plants)
	>300	New plants: 10 Existing plants: 20 (in general) 50 (for the firing of distillation and conversion residues within refineries from the refining of crude oil for own consumption in combustion plants)

Fuel type	*Thermal input (MWth)*	*ELV for dust (mg/m³)*[b]
Natural gas	> 50	5
Other gases	> 50	10 30 (for gases produced by the steel industry which can be used elsewhere)

a In particular, the ELVs shall not apply to:

- Plants in which the products of combustion are used for direct heating, drying, or any other treatment of objects or materials;
- Post-combustion plants designed to purify the waste gases by combustion which are not operated as independent combustion plants;
- Facilities for the regeneration of catalytic cracking catalysts;
- Facilities for the conversion of hydrogen sulphide into sulphur;
- Reactors used in the chemical industry;
- Coke battery furnaces;
- Cowpers;
- Recovery boilers within installations for the production of pulp;
- Waste incinerators; and
- Plants powered by diesel, petrol or gas engines or by combustion turbines, irrespective of the fuel used.

b The O2 reference content is 6% for solid fuels and 3% for liquid and gaseous fuels.

8. Mineral oil and gas refineries:

Table 2
Limit values for dust emissions released from mineral oil and gas refineries

Emission source	*ELV for dust (mg/m³)*
FCC regenerators	50

9. Cement clinker production:

Table 3
Limit values for dust emissions released from cement productiona

	ELV for dust (mg/m³)
Cement installations, kilns, mills and clinker coolers	20

a Installations for the production of cement clinker in rotary kilns with a capacity >500 Mg/day or in other furnaces with a capacity >50 Mg/day. The reference oxygen content is 10%.

10. Lime production:

Table 4
Limit values for dust emissions released from lime productiona

	ELV for dust (mg/m³)

	ELV for dust (mg/m³)
Lime kiln firing	20[b]

a Installations for the production of lime with a capacity of 50 Mg/day or more. This includes lime kilns integrated in other industrial processes, with the exception of the pulp industry (see table 9). The reference oxygen content is 11%.

b Where the resistivity of the dust is high, the ELV may be higher, up to 30 mg/m³.

11. Production and processing of metals:

Table 5
Limit values for dust emissions released from primary iron and steel production

Activity and capacity threshold	*ELV for dust (mg/m³)*
Sinter plant	50
Pelletization plant	20 for crushing, grinding and drying 15 for all other process steps
Blast furnace: Hot stoves (>2.5 t/hour)	10
Basic oxygen steelmaking and casting (>2.5 t/hour)	30
Electric steelmaking and casting (>2.5 t/hour)	15 (existing) 5 (new)

Table 6
Limit values for dust emissions released from iron foundries

Activity and capacity threshold	*ELV for dust (mg/m³)*
Iron foundries (>20 t/day): - all furnaces (cupola, induction, rotary) - all mouldings (lost, permanent)	20
Hot and cold rolling	20 50 where a bag filter cannot be applied due to the presence of wet fumes

Table 7
Limit values for dust emissions released from non-ferrous metals production and processing

	ELV for dust (mg/m³) (daily)
Non-ferrous metal processing	20

12. Glass production:

Table 8

Limit values for dust emissions released from glass productiona

	ELV for dust (mg/m³)
New installations	20
Existing installations	30

a Installations for the production of glass or glass fibres with a capacity of 20 Mg/day or more. Concentrations refer to dry waste gases at 8% oxygen by volume (continuous melting), 13% oxygen by volume (discontinuous melting).

13. Pulp production:

Table 9

Limit values for dust emissions released from pulp production

	ELV for dust (mg/m³) (annual averages)
Auxiliary boiler	40 when firing liquid fuels (at 3% oxygen content) 30 when firing solid fuels (at 6% oxygen content)
Recovery boiler and lime kiln	50

14. Waste incineration:

Table 10

Limit values for dust emissions released from waste incineration

	ELV for dust (mg/m³)
Municipal waste incineration plants (> 3 Mg/hour)	10
Hazardous and medical waste incineration (> 1 Mg/hour)	10

Note: Oxygen reference: dry basis, 11%.

15. Titanium dioxide production:

Table 11

Limit values for dust emissions released from titanium dioxide production

	ELV for dust (mg/m³)
Sulphate process, total emission	50
Chloride process, total emission	50

Note: For minor emission sources within an installation, an ELV of 150 mg/m³ may be applied.

16. Combustion installations with a rated thermal input < 50 MWth:

This paragraph is recommendatory in character and describes the measures that can be taken insofar as a Party considers them to be technically and economically feasible for the control of particulate matter:

(a) Residential combustion installations with a rated thermal input < 500 kWth:

(i) Emissions from new residential combustion stoves and boilers with a rated thermal input < 500 kWth can be reduced by the application of:

(aa) Product standards as described in CEN standards (e.g., EN 303–5) and equivalent product standards in the United States and Canada. Countries applying such product standards may define additional national requirements taking into account, in particular, the contribution of emissions of condensable organic compounds to the formation of ambient PM; or

(bb) Ecolabels specifying performance criteria that are typically stricter than the minimum efficiency requirements of the EN product standards or national regulations.

Table 12
Recommended limit values for dust emissions released from new solid fuel combustion installations with a rated thermal input < 500 kWth to be used with product standards

	Dust (mg/m³)
Open/closed fireplaces and stoves using wood	75
Log wood boilers (with heat storage tank)	40
Pellet stoves and boilers	50
Stoves and boilers using other solid fuels than wood	50
Automatic combustion installations	50

Note: O2 reference content: 13%.

(ii) Emissions from existing residential combustion stoves and boilers can be reduced by the following primary measures:

(aa) public information and awareness-raising programmes regarding:

- The proper operation of stoves and boilers;
- The use of untreated wood only;
- The correct seasoning of wood for moisture content.

(bb) establishing a programme to promote the replacement of the oldest existing boilers and stoves by modern appliances; or

(cc) establishing an obligation to exchange or retrofit old appliances.

(b) Non-residential combustion installations with a rated thermal input 100 kWth–1 MWth:

Table 13

Recommended limit values for dust emissions released from boilers and process heaters with a rated thermal input of 100 kWth–1 MWth.

		Dust (mg/m³)
Solid fuels 100–500 kWth	New installations	50
	Existing installations	150
Solid fuels 500 kWth–1 MWth	New installations	50
	Existing installations	150

Note: O2 reference content: wood, other solid biomass and peat: 13%; coal, lignite and other fossil solid fuels: 6%.

(c) Combustion installations with a rated thermal input > 1–50 MWth:

Table 14

Recommended limit values for dust emissions released from boilers and process heaters with a rated thermal input of 1 MWth–50 MWth

		Dust (mg/m³)
Solid fuels > 1–5 MWth	New installations	20
	Existing installations	50
Solid fuels > 5–50 MWth	New installations	20
	Existing installations	30
Liquid fuels > 1–5 MWth	New installations	20
	Existing installations	50
Liquid fuels >5-50 MWth	New installations	20
	Existing installations	30

Note: O2 reference content: Wood, other solid biomass and peat: 11%; Coal, lignite and other fossil solid fuels: 6%; Liquid fuels, including liquid biofuels: 3%.

B. Canada

17. Limit values for controlling emissions of PM will be determined for stationary sources, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions and the documents listed in

subparagraphs (a) to (h) below. Limit values may be expressed in terms of PM or TPM. TPM in this context means any PM with an aerodynamic diameter of less than 100 μm:

(a) Secondary Lead Smelter Release Regulations, SOR/91-155;

(b) Environmental Code of Practice for Base Metals Smelters and Refineries;

(c) New Source Emission Guidelines for Thermal Electricity Generation;

(d) Environmental Code of Practice for Integrated Steel Mills (EPS 1/MM/7);

(e) Environmental Code of Practice for Non-Integrated Steel Mills (EPS 1/MM/8);

(f) Emission Guidelines for Cement Kilns. PN 1284;

(g) Joint Initial Actions to Reduce Pollutant Emissions that Contribute to Particulate Matter and Ground-level Ozone; and

(h) Performance testing of solid-fuel-burning heating appliances, Canadian Standards Association, B415. 1-10.

C. United States of America

18. Limit values for controlling emissions of PM from stationary sources in the following stationary source categories, and the sources to which they apply, are specified in the following documents:

(a) Steel Plants: Electric Arc Furnaces — 40 C.F.R. Part 60, Subpart AA and Subpart AAa;

(b) Small Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart AAAA;

(c) Kraft Pulp Mills — 40 C.F.R. Part 60, Subpart BB;

(d) Glass Manufacturing — 40 C.F.R. Part 60, Subpart CC;

(e) Electric Utility Steam Generating Units — 40 C.F.R. Part 60, Subpart D and Subpart Da;

(f) Industrial-Commercial-Institutional Steam Generating Units — 40 C.F.R. Part 60, Subpart Db and Subpart Dc;

(g) Grain Elevators — 40 C.F.R. Part 60, Subpart DD;

(h) Municipal Waste Incinerators — 40 C.F.R. Part 60, Subpart E, Subpart Ea and Subpart Eb;

(i) Hospital/Medical/Infectious Waste Incinerators — 40 C.F.R. Part 60, Subpart Ec;

(j) Portland Cement — 40 C.F.R. Part 60, Subpart F;

(k) Lime Manufacturing — 40 C.F.R. Part 60, Subpart HH;

(l) Hot Mix Asphalt Facilities — 40 C.F.R. Part 60, Subpart I;

(m) Stationary Internal Combustion Engines: Compression Ignition — 40 C.F.R. Part 60, Subpart IIII;

(n) Petroleum Refineries — 40 C.F.R. Part 60, Subpart J and Subpart Ja;

(o) Secondary Lead Smelters — 40 C.F.R. Part 60, Subpart L;

(p) Metallic Minerals Processing — 40 C.F.R. Part 60, Subpart LL;

(q) Secondary Brass and Bronze — 40 C.F.R. Part 60, Subpart M;

(r) Basic Oxygen Process Furnaces — 40 C.F.R. Part 60, Subpart N;

(s) Basic Process Steelmaking Facilities — 40 C.F.R. Part 60, Subpart Na;

(t) Phosphate Rock Processing — 40 C.F.R. Part 60, Subpart NN;

(u) Sewage Treatment Plant Incineration — 40 C.F.R. Part 60, Subpart O;

(v) Nonmetallic Minerals Processing Plants — 40 C.F.R. Part 60, Subpart OOO;

(w) Primary Copper Smelters — 40 C.F.R. Part 60, Subpart P;

(x) Ammonium Sulfate Manufacturing — 40 C.F.R. Part 60, Subpart PP;

(y) Wool Fiberglass Insulation — 40 C.F.R. Part 60, Subpart PPP;

(z) Primary Zinc Smelters — 40 C.F.R. Part 60, Subpart Q;

(aa) Primary Lead Smelters — 40 C.F.R. Part 60, Subpart R;

(bb) Primary Aluminum reduction plants — 40 C.F.R. Part 60, Subpart S;

(cc) Phosphate Fertilizer Production — 40 C.F.R. Part 60, Subparts T, U, V, W, X;

(dd) Asphalt Processing and Asphalt Roofing Manufacturing — 40 C.F.R. Part 60, Subpart UU;

(ee) Calciners and Dryers in Mineral Industries — 40 C.F.R. Part 60, Subpart UUU;

(ff) Coal Preparation Plants — 40 C.F.R. Part 60, Subpart Y;

(gg) Ferroalloy Production Facilities — 40 C.F.R. Part 60, Subpart Z;

(hh) Residential Wood Heaters — 40 C.F.R. Part 60, Subpart AAA;

(ii) Small Municipal Waste Combustors (after 11/30/1999) — 40 C.F.R. Part 60, Subpart AAAA;

(jj) Small Municipal Waste Combustors (before 11/30/1999) — 40 C.F.R. Part 60, Subpart BBBB;

(kk) Other Solid Waste Incineration Units (after 12/9/2004) — 40 C.F.R. Part 60, Subpart EEEE;

(ll) Other Solid Waste Incineration Units (before 12/9/2004) — 40 C.F.R. Part 60, Subpart FFFF;

(mm) Stationary Compression Ignition Internal Combustion Engines — 40 C.F.R. Part 60, Subpart IIII; and

(nn) Lead Acid BatteryManufacturing Plants — 40 C.F.R. Part 60, Subpart KK.

19. Limit values for controlling emissions of PM from sources subject to National Emission Standards for Hazardous Air Pollutants:

(a) Coke oven batteries — 40 C.F.R. Part 63, Subpart L;

(b) Chrome Electroplating (major and Area sources) – 40 C.F.R. Part 63, Subpart N;

(c) Secondary lead smelters — 40 C.F.R. Part 63, Subpart X;

(d) Phosphoric Acid Manufacturing Plants — 40 C.F.R. Part 63, Subpart AA;

(e) Phosphate Fertilizers Production Plants — 40 C.F.R. Part 63, Subpart BB;

(f) Magnetic Tape Manufacturing — 40 C.F.R. Part 63, Subpart EE;

(g) Primary Aluminum— 40 C.F.R. Part 63, Subpart L;

(h) Pulp and paper II (combustion) — 40 C.F.R. Part 63, Subpart MM;

(i) Mineral wool manufacturing — 40 C.F.R. Part 63, Subpart DDD;

(j) Hazardous waste combustors — 40 C.F.R. Part 63, Subpart EEE;

(k) Portland cement manufacturing — 40 C.F.R. Part 63, Subpart LLL;

(l) Wool fiberglass manufacturing — 40 C.F.R. Part 63, Subpart NNN;

(m) Primary copper — 40 C.F.R. Part 63, Subpart QQQ;

(n) Secondary aluminum — 40 C.F.R. Part 63, Subpart RRR;

(o) Primary lead smelting — 40 C.F.R. Part 63, Subpart TTT;

(p) Petroleum refineries — 40 C.F.R. Part 63, Subpart UUU;

(q) Ferroalloys production — 40 C.F.R. Part 63, Subpart XXX;

(r) Lime manufacturing — 40 C.F.R. Part 63, Subpart AAAAA;

(s) Coke Ovens: Pushing, Quenching, and Battery Stacks — 40 C.F.R. Part 63, Subpart CCCCC;

(t) Iron and steel foundries — 40 C.F.R. Part 63, Subpart EEEEE;

(u) Integrated iron and steel manufacturing — 40 C.F.R. Part 63, Subpart FFFFF;

(v) Site remediation — 40 C.F.R. Part 63, Subpart GGGGG;

(w) Miscellaneous coating manufacturing — 40 C.F.R. Part 63, Subpart HHHHH;

(x) Asphalt Processing and Roofing Manufacturing — 40 C.F.R. Part 63, Subpart LLLLL;

(y) Taconite Iron Ore Processing — 40 C.F.R. Part 63, Subpart RRRRR;

(z) Refractory products manufacturing — 40 C.F.R. Part 63, Subpart SSSSS;

(aa) Primary magnesium refining — 40 C.F.R. Part 63, Subpart TTTTT;

(bb) Electric Arc Furnace Steelmaking Facilities — 40 C.F.R. Part 63, Subpart YYYYY;

(cc) Iron and steel foundries — 40 C.F.R. Part 63, Subpart ZZZZZ;

(dd) Primary Copper Smelting Area Sources — 40 C.F.R. Part 63, Subpart EEEEEE;

(ee) Secondary Copper Smelting Area Sources — 40 C.F.R. Part 63, Subpart FFFFFF;

(ff) Primary Nonferrous Metals Area Sources: Zinc, Cadmium, and Beryllium — 40 C.F.R. Part 63, Subpart GGGGGG;

(gg) Lead Acid Battery Manufacturing (Area sources) — 40 C.F.R. Part 63, Subpart PPPPPP;

(hh) Glass manufacturing (area sources) — 40 C.F.R. Part 63, Subpart SSSSSS;

(ii) Secondary Nonferrous Metal Smelter (Area Sources) — 40 C.F.R. Part 63, Subpart TTTTTT;

(jj) Chemical Manufacturing (Area Sources) — 40 C.F.R. Part 63, Subpart VVVVVV;

(kk) Plating and Polishing Operations (Area sources) — 40 C.F.R. Part 63, Subpart WWWWWW;

(ll) Area Source Standards for Nine Metal Fabrication and Finishing Source Categories — 40 C.F.R.Part 63, Subpart XXXXXX;

(mm) Ferroalloys Production (Area Sources) — 40 C.F.R. Part 63, Subpart YYYYYY;

(nn) Aluminum, Copper, and Nonferrous Foundries (Area Sources) — 40 C.F.R. Part 63, Subpart ZZZZZZ;

(oo) Asphalt Processing and Roofing Manufacturing (Area Sources) — 40 C.F.R. Part 63, Subpart AAAAAAA;

(pp) Chemical Preparation (Area Sources) — 40 C.F.R. Part 63, Subpart BBBBBBB;

(qq) Paints and Allied Products Manufacturing (Area Sources) — 40 C.F.R. Part 63, Subpart CCCCCCC;

(rr) Prepared animal feeds manufacturing (Area Sources) — 40 C.F.R. Part 63, Subpart DDDDDDD; and

(ss) Gold Mine Ore Processing and Production (Area Sources) — 40 C.F.R. Part 63, Subpart EEEEEEE.

X. Annex XI

A new annex XI is added as follows:

Annex XI
Limit values for volatile organic compounds content of products

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2. This section concerns the limitation of emissions of volatile organic compounds (VOCs) due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products.

3. For the purpose of section A of the present annex, the following general definitions shall apply:

(a) "Substances" means any chemical element and its compounds, as they occur in the natural state or as produced by industry, whether in solid or liquid or gaseous form;

(b) "Mixture" means mixtures or solutions composed of two or more substances;

(c) "Organic compound" means any compound containing at least the element carbon and one or more of hydrogen, oxygen, sulphur, phosphorus, silicon, nitrogen, or a halogen, with the exception of carbon oxides and inorganic carbonates and bicarbonates;

(d) "Volatile organic compound (VOC)" means any organic compound having an initial boiling point less than or equal to 250° C measured at a standard pressure of 101.3 kPa;

(e) "VOC content" means the mass of VOCs, expressed in grams/litre (g/l), in the formulation of the product in its ready to use condition. The mass of VOCs in a given product which react chemically during drying to form part of the coating shall not be considered part of the VOC content;

(f) "Organic solvent" means any VOC which is used alone or in combination with other agents to dissolve or dilute raw materials, products, or waste materials, or is used as a cleaning agent to dissolve contaminants, or as a dispersion medium, or as a viscosity adjuster, or as a surface tension adjuster, or as a plasticiser, or as a preservative;

(g) "Coating" means any mixture, including all the organic solvents or mixtures containing organic solvents necessary for its proper application, which is used to provide a film with decorative, protective or other functional effect on a surface;

(h) "Film" means a continuous layer resulting from the application of one or more coats to a substrate;

(i) "Water-borne coatings (WB)" means coatings the viscosity of which is adjusted by the use of water;

(j) "Solvent-borne coatings (SB)" means coatings the viscosity of which is adjusted by the use of organic solvent;

(k) "Placing on the market" means making available to third parties, whether in exchange for payment or not. Importation into the Parties customs territory shall be deemed to be placing on the market for the purposes of this annex.

4. "Paints and varnishes" means products listed in the subcategories below, excluding aerosols. They are coatings applied to buildings, their trim and fitting, and associated structures for decorative, functional and protective purpose:

(a) "Matt coatings for interior walls and ceilings" means coatings designed for application to indoor walls and ceilings with a gloss < 25 @ 60 degrees;

(b) "Glossy coatings for interior walls and ceilings" means coatings designed for application to indoor walls and ceilings with a gloss > 25 @ 60 degrees;

(c) "Coatings for exterior walls of mineral substrate" means coatings designed for application to outdoor walls of masonry, brick or stucco;

(d) "Interior/exterior trim and cladding paints for wood, metal or plastic" means coatings designed for application to trim and cladding which produce an opaque film. These coatings are designed for either a wood, metal or a plastic substrate. This subcategory includes undercoats and intermediate coatings;

(e) "Interior/exterior trim varnishes and wood stains" means coatings designed for application to trim which produce a transparent or semi-transparent film for decoration and protection of wood, metal and plastics. This subcategory includes opaque wood stains. Opaque wood stains means coatings producing an opaque film for the decoration and protection of wood, against weathering, as defined in EN 927-1, within the semi-stable category;

(f) "Minimal build wood stains" means wood stains which, in accordance with EN 927-1:1996, have a mean thickness of less than 5μm when tested according to ISO 2808: 1997, method 5A;

(g) "Primers" means coatings with sealing and/or blocking properties designed for use on wood or walls and ceilings;

(h) "Binding primers" means coatings designed to stabilize loose substrate particles or impart hydrophobic properties and/or to protect wood against blue stain;

(i) "One-pack performance coatings" means performance coatings based on film-forming material. They are designed for applications requiring a special performance, such as primer and topcoats for plastics, primer coat for ferrous substrates, primer coat for reactive metals such as zinc and aluminium, anticorrosion finishes, floor coatings, including for wood and cement floors, graffiti resistance, flame retardant, and hygiene standards in the food or drink industry or health services;

(j) "Two-pack performance coatings" means coatings with the same use as one-performance coatings, but with a second component (e.g., tertiary amines) added prior to application;

(k) "Multicoloured coatings" means coatings designed to give a two-tone or multiple-colour effect, directly from the primary application;

(l) "Decorative effect coatings" means coatings designed to give special aesthetic effects over specially prepared pre-painted substrates or base coats and subsequently treated with various tools during the drying period.

5. "Vehicle refinishing products" means products listed in the subcategories below. They are used for the coating of road vehicles, or part of them, carried out as part of vehicle repair, conservation or decoration outside of manufacturing installations. In this respect, "road vehicle" means any motor vehicle intended for use on the road, being complete or incomplete, having at least four wheels and a maximum design speed exceeding 25 km/h, and its trailers, with the exception of vehicles which run on rails and of agricultural and forestry tractors and all mobile machinery:

(a) "Preparatory and cleaning" means products designed to remove old coatings and rust, either mechanically or chemically, or to provide a key for new coatings:

(i) Preparatory products include gunwash (a product designed for cleaning spray-guns and other equipment), paint strippers, degreasers (including anti-static types for plastic) and silicone removers;

(ii) "Pre-cleaner" means a cleaning product designed for the removal of surface contamination during preparation for and prior to the application of coating materials.

(b) "Bodyfiller/stopper" means heavy-bodied compounds designed to be applied to fill deep surface imperfections prior to the application of the surfacer/filler;

(c) "Primer" means any coating that is designed for application to bare metal or existing finishes to provide corrosion protection prior to application of a primer surfacer:

(i) "Surfacer/filler" means a coating designed for application immediately prior to the application of topcoat for the purpose of corrosion resistance, to ensure adhesion of the topcoat, and to promote the formation of a uniform surface finish by filling in minor surface imperfections;

(ii) "General metal primer" means a coating designed for application as primers, such as adhesion promoters, sealers, surfacers, undercoats, plastic primers, wet-on-wet, non-sand fillers and spray fillers;

(iii) "Wash primer" means coatings containing at least 0.5% by weight of phosphoric acid designed to be applied directly to bare metal surfaces to provide corrosion resistance and adhesion; coatings used as weldable primers; and mordant solutions for galvanized and zinc surfaces.

(d) "Topcoat" means any pigmented coating that is designed to be applied either as a single-layer or as a multiple-layer base to provide gloss and durability. It includes all products involved such as base coatings and clear coatings:

(i) "Base coatings" means pigmented coatings designed to provide colour and any desired optical effects, but not the gloss or surface resistance of the coating system;

(ii) "Clear coating" means a transparent coating designed to provide the final gloss and resistance properties of the coating system.

(e) "Special finishes" means coatings designed for application as topcoats requiring special properties, such as metallic or pearl effect, in a single layer, high-performance solid-colour and clear coats, (e.g., anti-scratch and fluorinated clear coat), reflective base coat, texture finishes (e.g., hammer), anti-slip, under-body sealers, anti-chip coatings, interior finishes; and aerosols.

6. Parties shall ensure that the products covered by this annex which are placed on the market within their territory comply with the maximum VOC content as specified in tables 1 and 2. For the purposes of restoration and maintenance of buildings and vintage vehicles designated by competent authorities as being of particular historical and cultural value, Parties may grant individual licences for the sale and purchase in strictly limited quantities of products which do not meet the VOC limit values laid down in this annex. Parties may also exempt from compliance with the above requirements products sold for exclusive use in an activity covered by annex VI and carried out in a registered or authorized installation complying with that annex.

Table 1
Maximum VOC content for paints and varnishes

Product subcategory	*Type*	*(g/l)**
Interior matt wall and ceilings (Gloss ≤ 25@60°)	WB	30
	SB	30
Interior glossy walls and ceilings (Gloss > 25@60°)	WB	100
	SB	100
Exterior walls of mineral substrate	WB	40
	SB	430
Interior/exterior trim and cladding paints for wood and metal	WB	130
	SB	300
Interior/exterior trim varnishes and wood stains, including opaque wood stains	WB	130
	SB	400
Interior and exterior minimal build wood stains	WB	130
	SB	700
Primers	WB	30
	SB	350
Binding primers	WB	30
	SB	750
One pack performance coatings	WB	140
	SB	500
Two-pack reactive performance coatings for specific end-use	WB	140
	SB	500
Multi-coloured coatings	WB	100
	SB	100
Decorative effects coatings	WB	200
	SB	200

* g/l ready to use.

Table 2
Maximum VOC content for vehicle refinishing products

Product Subcategory	*Coatings*	*VOC (g/l)**
Preparatory and cleaning	Preparatory	850
	Pre-cleaner	200
Bodyfiller/stopper	All types	250
Primer	Surfacer/filler and general (metal) primer	540
	Wash primer	780
Topcoat	All types	420
Special finishes	All types	840

* g/l of ready-for-use product. Except for "preparatory and cleaning", any water content of the product ready for use should be discounted.

B. Canada

7. Limit values for controlling emissions of VOCs from the use of consumer and commercial products will be determined, as appropriate, taking into account information on available control technologies, techniques and measures, limit values applied in other jurisdictions, and the documents below:

(a) VOC Concentration Limits for Architectural Coatings Regulations, SOR/2009-264;

(b) VOC Concentration Limits for Automotive Refinishing Products, SOR/2009-197;

(c) Regulations Amending the Prohibition of Certain Toxic Substances Regulations, 2005 (2-Methoxyethanol, Pentachlorobenzene and Tetrachlorobenzenes), SOR/2006-279;

(d) Federal Halocarbon Regulations, SOR/2003-289;

(e) Prohibition of Certain Toxic Substances Regulations, SOR/2003-99;

(f) Solvent Degreasing Regulations, SOR/2003-283;

(g) Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations, SOR/2003-79;

(h) Order Adding Toxic Substances to Schedule 1 to the Canadian Environmental Protection Act, 1999;

(i) Notice with Respect to Certain Substances on the Domestic Substances List (DSL);

(j) Order Amending Schedule 1 to the Canadian Environmental Protection Act, 1999 (Miscellaneous Program);

(k) Ozone-depleting Substances Regulations, SOR/99-7;

(l) Proposed regulations for VOC Concentrations Limits for Certain Products;

(m) Proposed notice requiring the preparation and implementation of pollution prevention plans in respect of specified substances on Schedule 1 of the Canadian Environmental Protection Act, 1999, related to the resin and synthetic rubber manufacturing sector;

(n) Proposed notice requiring the preparation and implementation of pollution prevention plans in respect of specified substances on Schedule 1 of the Canadian Environmental Protection Act, 1999, implicated in the polyurethane and other foam sector (except polystyrene);

(o) Notice with Respect to Certain Hydrochlorofluorocarbons;

(p) Notice with Respect to Certain Substances on the Domestic Substances List (DSL); and

(q) Environmental Code of Practice for the Reduction of Solvent Emissions from Dry Cleaning Facilities. PN 1053.

C. United States of America

8. Limit values for controlling emissions of VOCs from sources subject to National Volatile Organic Compound Emission Standards for Consumer and Commercial Products are specified in the following documents:

(a) Automobile refinish coatings — 40 C.F.R. Part 59, Subpart B;

(b) Consumer products — 40 C.F.R. Part 59, Subpart C;

(c) Architectural coatings — 40 C.F.R. Part 59, Subpart D; and

(d) Aerosol coatings — 40 C.F.R. Part 59, Subpart E.

Članak 3.

Provedba ovoga Zakona u djelokrugu je središnjih tijela državne uprave nadležnih za poslove zaštite okoliša, poljoprivrede, zdravstva, gospodarstva i poduzetništva, rada te unutarnjih poslova.

Članak 4.

Na dan stupanja na snagu Zakona Izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine i dodavanje novih Dodataka X. i XI. iz članka 1. ovoga Zakona nisu na snazi u odnosu na Republiku Hrvatsku te će se podaci o njihovom stupanju na snagu objaviti sukladno odredbi članka 30. stavka 3. Zakona o sklapanju i izvršavanju međunarodnih ugovora (Narodne novine, broj 28/96).

Članak 5.

Ovaj Zakon stupa na snagu osmoga dana od dana objave u Narodnim novinama.

O B R A Z L O Ž E N J E

Uz članak 1.
Ovim člankom utvrđuje se da Hrvatski sabor potvrđuje Izmjenu i dopunu teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine i dodavanje novih Dodataka X. i XI. u skladu s odredbama članka 140. stavka 1. Ustava Republike Hrvatske (Narodne novine, br. 85/10 - pročišćeni tekst i 5/14 – Odluka Ustavnog suda Republike Hrvatske.

Uz članak 2.
Članak 2. sadrži tekst Izmjena i dopuna Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine i dodavanje novih dodataka X. i XI. u izvorniku na engleskom jeziku i u prijevodu na hrvatski jezik.

Uz članak 3.
Ovim člankom utvrđuje se da je provedba Zakona u djelokrugu središnjih tijela državne uprave nadležnih za poslove zaštite okoliša, poljoprivrede, zdravstva, gospodarstva i poduzetništva, rada te unutarnjih poslova.

Uz članak 4.
Ovim člankom utvrđuje se da na dan stupanja na snagu Zakona Izmjena i dopuna teksta i Dodataka od II. do IX. i novi Dodatci X. i XI. Protokola nije na snazi u odnosu na Republiku Hrvatsku te da će se podaci o njezinom stupanju na snagu objaviti naknadno u skladu s odredbom članka 30. stavka 3. Zakona o sklapanju i izvršavanju međunarodnih ugovora.

Uz članak 5.
Ovim člankom uređuje se stupanje na snagu Zakona.

PRILOG: - Izvješće o provedenom savjetovanju sa zainteresiranom javnošću

- Preslika teksta Izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine i dodavanje novih dodataka X. i XI. u izvorniku na engleskom jeziku

OBRAZAC IZVJEŠĆA O PROVEDENOM SAVJETOVANJU SA ZAINTERESIRANOM JAVNOŠĆU	
Naslov dokumenta	Izvješće o provedenom savjetovanju sa zainteresiranom javnošću o prijedlogu Zakona o potvrđivanju izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine
Stvaratelj dokumenta, tijelo koje provodi savjetovanje	Ministarstvo zaštite okoliša i energetike
Svrha dokumenta	Izvješće o provedenom savjetovanju
Datum dokumenta	24.9.2018.
Verzija dokumenta	1.
Vrsta dokumenta	Izvješće
Naziv nacrta zakona, drugog propisa ili akta	Zakon o potvrđivanju izmjena i dopuna teksta i Dodataka od II. do IX. Protokola o suzbijanju zakiseljavanja, eutrofikacije i prizemnog ozona iz 1999. godine i dodavanje novih dodataka X. i XI. uz Konvenciju o dalekosežnom prekograničnom onečišćenju zraka iz 1979. godine
Jedinstvena oznaka iz Plana donošenja zakona, drugih propisa i akata objavljenog na internetskim stranicama Vlade	-
Naziv tijela nadležnog za izradu nacrta	Ministarstvo zaštite okoliša i energetike
Koji su predstavnici zainteresirane javnosti bili uključeni u postupak izrade odnosno u rad stručne radne skupine za izradu nacrta?	-
Je li nacrt bio objavljen na internetskim stranicama ili na drugi odgovarajući način? Ako jest, kada je nacrt objavljen, na kojoj internetskoj stranici i koliko je vremena ostavljeno za savjetovanje? Ako nije, zašto?	Da, na portalu esavjetovanja.gov.hr. Savjetovanje je bilo otvoreno od 23. kolovoza do 22. rujna 2018. godine
Koji su predstavnici zainteresirane javnosti dostavili svoja očitovanja?	Ivan Čuljak
ANALIZA DOSTAVLJENIH PRIMJEDBI Primjedbe koje su prihvaćene Primjedbe koje nisu prihvaćene i obrazloženje razloga za neprihvaćanje	 Prihvaća se primjedba vezana uz Dodatak II., Tablicu 6. Daljnji komentari se ne prihvaćaju, s obzirom da je sve navedeno dio izvornog prijevoda Izmjena i dopuna Protokola.
Troškovi provedenog savjetovanja	Provedba savjetovanja nije iziskivala dodatne troškove.

Amendment of the text of and annexes II to IX to the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone and the addition of new annexes X and XI

Article 1
Amendment

The Parties to the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, meeting within the thirtieth session of the Executive Body,

Decide to amend the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) to the Convention on Long-range Transboundary Air Pollution as set out in the annex to this decision.

Article 2
Relationship to the Gothenburg Protocol

No State or regional economic integration organization may deposit an instrument of acceptance of this Amendment unless it has previously, or simultaneously, deposited an instrument of ratification, acceptance, approval or accession to the Gothenburg Protocol.

Article 3
Entry into force

In accordance with article 13, paragraph 3, of the Gothenburg Protocol, this Amendment shall enter into force on the ninetieth day after the date on which two thirds of the Parties to the Gothenburg Protocol have deposited with the Depositary their instruments of acceptance thereof.

Annex

A. Preamble

1. In the second preambular paragraph, the words "volatile organic compounds and reduced nitrogen compounds" are replaced by the words "volatile organic compounds, reduced nitrogen compounds and particulate matter"

2. In the third preambular paragraph, the words "and particulate matter" are inserted after the word "ozone"

3. In the fourth preambular paragraph, the words "sulphur and volatile organic compounds, as well as secondary pollutants such as ozone" are replaced by the words "sulphur, volatile organic compounds, ammonia and directly emitted particulate matter, as well as secondarily formed pollutants such as ozone, particulate matter"

4 The following preambular paragraph is added between the fourth and fifth preambular paragraphs:

"*Recognizing* the assessments of scientific knowledge by international organizations, such as the United Nations Environment Programme, and by the Arctic Council, about the human health and climate co-benefits of reducing black carbon and ground-level ozone, particularly in the Arctic and in the Alpine regions,".

5. For the sixth preambular paragraph there is substituted

Recognizing also that Canada and the United States of America are bilaterally addressing cross-border air pollution under the Canada – United States Air Quality Agreement, which includes commitments by both countries to reduce emissions of sulphur dioxide, nitrogen oxides and volatile organic compounds, and that the two countries are considering the inclusion of commitments to reduce emissions of particulate matter,

6. For the seventh preambular paragraph there is substituted:

Recognizing furthermore that Canada is committed to achieving reductions of sulphur dioxide, nitrogen oxides, volatile organic compounds and particulate matter to meet the Canadian Ambient Air Quality Standards for ozone and particulate matter and the national objective to reduce acidification, and that the United States is committed to the implementation of programmes to reduce emissions of nitrogen oxides, sulphur dioxide, volatile organic compounds and particulate matter necessary to meet national ambient air quality standards for ozone and particulate matter, to make continued progress in reducing acidification and eutrophication effects and to improve visibility in national parks and urban areas alike,

7. The ninth and tenth preambular paragraphs are replaced by the following preambular paragraphs.

"*Taking into account* the scientific knowledge about the hemispheric transport of air pollution, the influence of the nitrogen cycle and the potential synergies with and trade-offs between air pollution and climate change,

Aware that emissions from shipping and aviation contribute significantly to adverse effects on human health and the environment and are important issues under consideration by the International Maritime Organization and the International Civil Aviation Organization,".

8. In the fifteenth preambular paragraph, the words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter".

9. In the nineteenth preambular paragraph, the words "and particulate matter, including black carbon," are inserted after the words "nitrogen compounds".

10. The twentieth and twenty-first preambular paragraphs are deleted

11 In the twenty-second preambular paragraph:

(a) The words "and ammonia" are replaced by the words "and reduced nitrogen compounds"; and

(b) The words "including nitrous oxide" are replaced by the words ", including nitrous oxide and nitrate levels in ecosystems,".

12. In the twenty-third preambular paragraph, the word "tropospheric" is replaced by the words "ground-level".

B. Article 1

1 The following paragraph is added after paragraph 1:

1 bis The terms "this Protocol", "the Protocol" and "the present Protocol" mean the 1999 Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone, as amended from time to time.

2 The words ", expressed as ammonia (NH_3)" are added at the end of paragraph 9.

3 The following paragraphs are added after paragraph 11:

11 bis "Particulate matter" or "PM" is an air pollutant consisting of a mixture of particles suspended in the air. These particles differ in their physical properties (such as size and shape) and chemical composition. Unless otherwise stated, all references to particulate matter in the present Protocol refer to particles with an aerodynamic diameter equal to or less than 10 microns (μm) (PM_{10}), including those with an aerodynamic diameter equal to or less than 2.5 μm ($PM_{2.5}$).

11 ter. "Black carbon" means carbonaceous particulate matter that absorbs light;

11 quater "Ozone precursors" means nitrogen oxides, volatile organic compounds, methane and carbon monoxide.

4 In paragraph 13, the words "or fluxes to receptors" are inserted after the word "atmosphere".

5 In paragraph 15, the words "volatile organic compounds or ammonia" are replaced by the words "volatile organic compounds, ammonia or particulate matter".

6. For paragraph 16 there is substituted:

"New stationary source" means any stationary source of which the construction or substantial modification is commenced after the expiry of one year from the date of entry into force for a Party of the present Protocol. A Party may decide not to treat as a new stationary source any stationary source for which approval has already been given by the appropriate competent national authorities at the time of entry into force of the Protocol for that Party and provided that the construction or substantial modification is commenced within 5 years of that date. It shall be a matter for the competent national authorities to decide whether a modification is substantial or not, taking account of such factors as the environmental benefits of the modification.

C. Article 2

1 In the chapeau:

(a) Before the words "The objective of the present Protocol" is inserted "1.";

(b) The words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter";

(c) The words "and the environment" are inserted after "human health";

(d) The words "materials and crops" are replaced by the words "materials, crops and the climate in the short and long term", and

(e) The words ", particulate matter" are inserted after the word "eutrophication".

2. The words ", that allow ecosystem recovery" are inserted at the end of subparagraph (a)

3 In subparagraph (b), the words ", that allow ecosystem recovery" are added at the end of the subparagraph and the word "and" is deleted after the semicolon.

4. In subparagraph (c) (ii), the words "Canada-wide Standard" are replaced by the words "Canadian Ambient Air Quality Standard"

5 New subparagraphs (d), (e) and (f) are added after subparagraph (c) as follows

(d) For particulate matter

(i) For Parties within the geographical scope of EMEP, the critical levels of particulate matter, as given in annex I,

(ii) For Canada, the Canadian Ambient Air Quality Standards for particulate matter; and

(iii) For the United States of America, the National Ambient Air Quality Standards for particulate matter;

(e) For Parties within the geographical scope of EMEP, the critical levels of ammonia, as given in annex I, and

(f) For Parties within the geographical scope of EMEP, the acceptable levels of air pollutants to protect materials, as given in annex I.

6. A new paragraph 2 is added at the end of article 2 as follows.

2. A further objective is that Parties should, in implementing measures to achieve their national targets for particulate matter, give priority, to the extent they consider appropriate, to emission reduction measures which also significantly reduce black carbon in order to provide benefits for human health and the environment and to help mitigation of near-term climate change

D. Article 3

1 In paragraph 1

(a) The word "ceiling" in the first line is replaced by the words "reduction commitment",

(b) The word "ceiling" in the second line is replaced by the word "commitment"; and

(c) The words "In taking steps to reduce emissions of particulate matter, each Party should seek reductions from those source categories known to emit high amounts of black carbon, to the extent it considers appropriate " are added at the end of the paragraph

2. In paragraphs 2 and 3, the words "V and VI" are replaced by the words "V, VI and X"

3. The words "Subject to paragraphs 2 bis and 2 ter," are inserted at the beginning of paragraph 2

4. New paragraphs 2 bis and 2 ter are inserted as follows.

2 bis A Party that was already a Party to the present Protocol prior to entry into force of an amendment that introduces new source categories may apply the limit values applicable to an "existing stationary source" to any source in such a new category the construction or substantial modification of which is commenced before

the expiry of one year from the date of entry into force of that amendment for that Party, unless and until that source later undergoes substantial modification.

2 ter. A Party that was already a Party to the present Protocol prior to entry into force of an amendment that introduces new limit values applicable to a "new stationary source" may continue to apply the previously applicable limit values to any source the construction or substantial modification of which is commenced before the expiry of one year from the date of entry into force of that amendment for that Party, unless and until that source later undergoes substantial modification.

5 Paragraph 4 is deleted.

6 For paragraph 6 there is substituted:

Each Party should apply best available techniques to mobile sources covered by annex VIII and to each stationary source covered by annexes IV, V, VI and X, and, as it considers appropriate, measures to control black carbon as a component of particulate matter, taking into account guidance adopted by the Executive Body.

7. For paragraph 7 there is substituted:

Each Party shall, insofar as it is technically and economically feasible, and taking into consideration the costs and advantages, apply the limit values for VOC contents of products as identified in annex XI in accordance with the timescales specified in annex VII.

8. In paragraph 8 (b):

(a) The words "document V" and "at its seventeenth session (decision 1999/1) and any amendments thereto" are deleted, and

(b) The following sentence is added at the end of the paragraph:

Special attention should be given to reductions of ammonia emissions from significant sources of ammonia for that Party.

9. In paragraph 9 (b), the words "ammonia and/or volatile organic compounds contributing to acidification, eutrophication or ozone formation" are replaced by the words "ammonia, volatile organic compounds and/or particulate matter contributing to acidification, eutrophication, ozone formation or increased levels of particulate matter".

10. In paragraph 10 (b), the words "sulphur and/or volatile organic compounds" are replaced by the words "sulphur, volatile organic compounds and/or particulate matter".

11. For paragraph 11 there is substituted the following:

Canada and the United States of America shall, upon ratification, acceptance or approval of, or accession to the present Protocol or the amendment contained in decision 2012/2 submit to the Executive Body their respective emission reduction commitments with respect to sulphur, nitrogen oxides, volatile organic compounds and particulate matter for automatic incorporation into annex II.

12 New paragraphs are added after paragraph 11 as follows:

11 bis. Canada shall also upon ratification, acceptance or approval of, or accession to the present Protocol, submit to the Executive Body relevant limit values for automatic incorporation into annexes IV, V, VI, VIII, X and XI.

11 ter. Each Party shall develop and maintain inventories and projections for the emissions of sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds, and particulate matter. Parties within the geographic scope of EMEP shall use the methodologies specified in guidelines prepared by the Steering Body of EMEP and adopted by the Parties at a session of the Executive Body. Parties in areas outside the geographic scope of EMEP shall use as guidance the methodologies developed through the workplan of the Executive Body.

11 quater. Each Party should actively participate in programmes under the Convention on the effects of air pollution on human health and the environment.

11 quinquies. For the purposes of comparing national emission totals with emission reduction commitments as set out in paragraph 1, a Party may use a procedure specified in a decision of the Executive Body. Such a procedure shall include provisions on the submission of supporting documentation and on review of the use of the procedure.

E. Article 3 bis

1. A new article 3 bis is added as follows:

Article 3 bis
Flexible Transitional Arrangements

1. Notwithstanding article 3, paragraphs 2, 3, 5 and 6, a Party to the Convention that becomes a Party to the present Protocol between January 1, 2013, and December 31, 2019, may apply flexible transitional arrangements for the implementation of limit values specified in annexes VI and/or VIII under the conditions specified in this article.

2. Any Party electing to apply the flexible transitional arrangements under this article shall indicate in its instrument of ratification, acceptance or approval of or accession to the present Protocol the following:

(a) the specific provisions of annex VI and/or VIII for which the Party is electing to apply flexible transitional arrangements; and

(b) an implementation plan identifying a timetable for full implementation of the specified provisions.

3. An implementation plan under paragraph 2 (b) shall, at a minimum, provide for implementation of the limit values for new and existing stationary sources specified in Tables 1 and 5 of annex VI and Tables 1, 2, 3, 13 and 14 of annex VIII no later than eight years after entry into force of the present Protocol for the Party, or December 31, 2022, whichever is sooner.

4. In no case may a Party's implementation of any limit values for new and existing stationary sources specified in annex VI or annex VIII be postponed past December 31, 2030.

5. A Party electing to apply the flexible transitional arrangements under this article shall provide the Executive Secretary of the Commission with a triennial report of its progress towards implementation of annex VI and/or annex VIII. The Executive Secretary of the Commission will make such triennial reports available to the Executive Body.

F. Article 4

1 In paragraph 1. the words "ammonia and volatile organic compounds" are replaced by the words "ammonia. volatile organic compounds and particulate matter. including black carbon"

2. In paragraph 1 (a). the words "low emission burners and good environmental practice in agriculture" are replaced by the words "low emission burners. good environmental practice in agriculture and measures that are known to mitigate emissions of black carbon as a component of particulate matter".

G. Article 5

1. In paragraph 1 (a):

(a) The words "ammonia and volatile organic compounds" are replaced by the words "ammonia. volatile organic compounds and particulate matter. including black carbon"; and

(b) The words "national emission ceilings or" are replaced by the words "emission reduction commitments and"

2. For paragraph 1 (c) is substituted:

(c) Levels of ground-level ozone and particulate matter.

3. In paragraph 1 (d). "6." is replaced by "6: and".

4. A new paragraph 1 (e) is added as follows:

(c) The environmental and human health improvements associated with attaining emission reduction commitments for 2020 and beyond as listed in annex II. For countries within the geographical scope of EMEP. information on such improvements will be presented in guidance adopted by the Executive Body.

5. In paragraph 2 (c):

(a) The words "Health and environmental" are replaced by the words "Human health. environmental and climate"; and

(b) The words "reduction of" are inserted after the words "associated with".

H. Article 6

1. In paragraph 1 (b). the words "ammonia and volatile organic compounds" are replaced by the words "ammonia. volatile organic compounds and particulate matter".

2. In paragraph 1 (f). the words "documents I to V" and "at its seventeenth session (decision 1999/1) and any amendments thereto" are deleted.

3. In paragraph 1 (g). the words "document VI" and "at its seventeenth session (decision 1999/1) and any amendments thereto" are deleted.

4. In paragraph 1 (h). the words "ammonia and volatile organic compounds" are replaced by the words "ammonia. volatile organic compounds and particulate matter"

5. For paragraph 2 is substituted:

Each Party shall collect and maintain information on:

(a) Ambient concentrations and depositions of sulphur and nitrogen compounds,

(b) Ambient concentrations of ozone, volatile organic compounds and particulate matter, and

(c) If practicable, estimates of exposure to ground-level ozone and particulate matter

Each Party shall, if practicable, also collect and maintain information on the effects of all of these pollutants on human health, terrestrial and aquatic ecosystems, materials and the climate Parties within the geographic scope of EMEP should use guidelines adopted by the Executive Body Parties outside the geographic scope of EMEP should use as guidance the methodologies developed through the workplan of the Executive Body

6 A new paragraph 2 bis is inserted as follows:

2 bis Each Party should, to the extent it considers appropriate, also develop and maintain inventories and projections for emissions of black carbon, using guidelines adopted by the Executive Body.

I. Article 7

1. In paragraph 1 (a) (ii), for the words "paragraph 3" are substituted the words "paragraphs 3 and 7".

2 For the chapeau of paragraph 1 (b) is substituted:

(b) Each Party within the geographical scope of EMEP shall report to EMEP through the Executive Secretary of the Commission the following information for the emissions of sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds and particulate matter, on the basis of guidelines prepared by the Steering Body of EMEP and adopted by the Executive Body:

3. In paragraph 1 (b) (i), the words "of sulphur, nitrogen oxides, ammonia and volatile organic compounds" are deleted.

4 In paragraph 1 (b) (ii):

(a) The words "of each substance" are deleted, and

(b) For the number "(1990)" is substituted the words "specified in annex II".

5 In paragraph 1 (b) (iii) the words "and current reduction plans" are deleted

6 For paragraph 1 (b) (iv) is substituted.

(iv) An Informative Inventory Report containing detailed information on reported emission inventories and emission projections,

7 A new paragraph 1 (b bis) is added as follows

(b bis) Each Party within the geographical scope of EMEP should report available information to the Executive Body, through the Executive Secretary of the Commission, on its air pollution effects programmes on human health and the environment and atmospheric monitoring and modelling programmes under the Convention, using guidelines adopted by the Executive Body,

8 For paragraph 1 (c), there is substituted

(c) Parties in areas outside the geographical scope of EMEP shall report available information on levels of emissions, including for the reference year specified in annex II and appropriate to the geographic area covered by its emission reduction commitments. Parties in areas outside the geographic scope of EMEP should make available information similar to that specified in subparagraph (b bis), if requested to do so by the Executive Body.

9 A new subparagraph (d) is added after subparagraph 1 (c) as follows:

(d) Each Party should also report, where available, its emissions inventories and projections for emissions of black carbon, using guidelines adopted by the Executive Body.

10 For the chapeau to paragraph 3, there is substituted:

Upon the request of and in accordance with the timescales decided by the Executive Body, EMEP and other subsidiary bodies shall provide the Executive Body with relevant information on:

11 In paragraph 3 (a), the words "particulate matter including black carbon," are inserted after the words "concentrations of".

12 In paragraph 3 (b), the words "ozone and its precursors" are replaced by the words "particulate matter, ground-level ozone and their precursors,".

13 New subparagraphs (c) and (d) are inserted after subparagraph 3 (b) as follows:

(c) Adverse effects on human health, natural ecosystems, materials and crops, including interactions with climate change and the environment related to the substances covered by the present Protocol, and progress in achieving human health and environmental improvements as described in guidance adopted by the Executive Body, and

(d) The calculation of nitrogen budgets, nitrogen use efficiency and nitrogen surpluses and their improvements within the geographical area of EMEP using guidance adopted by the Executive Body.

14 The final sentence of paragraph 3 is deleted.

15 In paragraph 4, the words "and particulate matter" are added at the end of the paragraph.

16 In paragraph 5, the words "actual ozone concentrations and the critical levels of ozone" are replaced by the words "actual ozone and particulate matter concentrations and the critical levels of ozone and particulate matter".

17 A new paragraph 6 is added as follows:

6 Notwithstanding article 7 1 (b), a Party may request the Executive Body for permission to report a limited inventory for a particular pollutant or pollutants if:

(a) The Party did not previously have reporting obligations under the present Protocol or any other protocol for that pollutant, and

(b) The limited inventory of the Party includes, at a minimum, all large point sources of the pollutant or pollutants within the Party or a relevant PEMA.

The Executive Body shall grant such a request annually for up to five years after entry into force of the present Protocol for a Party, but in no case for reporting of emissions for any year after 2019. Such a request will be accompanied by

information on progress toward developing a more complete inventory as part of the Party's annual reporting.

J. Article 8

1. In paragraph (b), the words "particulate matter, including black carbon," are inserted after the words "those on".

2. In paragraph (c), the words "nitrogen compounds and volatile organic compounds" are replaced by the words "nitrogen compounds, volatile organic compounds and particulate matter, including black carbon".

3 After paragraph (d), a new paragraph (d bis) is added as follows:

The improvement of the scientific understanding of the potential co-benefits for climate change mitigation associated with potential reduction scenarios for air pollutants (such as methane, carbon monoxide and black carbon) which have near-term radiative forcing and other climate effects,

4. In paragraph (e), the words "eutrophication and photochemical pollution" are replaced by the words "eutrophication, photochemical pollution and particulate matter"

5. In paragraph (f), the words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and other ozone precursors, and particulate matter".

6. In paragraph (g):

(a) The words "nitrogen and volatile organic compounds" are replaced by the words "nitrogen, volatile organic compounds and particulate matter",

(b) The words "including their contribution to concentrations of particulate matter," are deleted; and

(c) The words "volatile organic compounds and tropospheric ozone" are replaced by the words "volatile organic compounds, particulate matter and ground-level ozone".

7. In paragraph (k).

(a) The words "environment and human health" are replaced by the words "environment, human health and the impacts on climate"; and

(b) The words "ammonia and volatile organic compounds" are replaced by the words "ammonia, volatile organic compounds and particulate matter".

K. Article 10

1 In paragraph 1, the words "sulphur and nitrogen compounds" are replaced by the words "sulphur, nitrogen compounds and particulate matter"

2 In paragraph 2 (b).

(a) The words "health effects" are replaced by the words "human health effects, climate co-benefits"; and

(b) The words "particulate matter," are inserted after the words "related to".

3. New paragraphs 3 and 4 are added as follows.

3. The Executive Body shall include in its reviews under this article an evaluation of mitigation measures for black carbon emissions, no later than at the second session of the Executive Body after entry into force of the amendment contained in decision 2012/2.

4. The Parties shall, no later than at the second session of the Executive Body after entry into force of the amendment contained in decision 2012/2, evaluate ammonia control measures and consider the need to revise annex IX.

L. Article 13

For article 13 there shall be substituted.

Article 13
Adjustments

1. Any Party to the Convention may propose an adjustment to annex II to the present Protocol to add to it its name, together with emission levels, emission ceilings and percentage emission reductions

2. Any Party may propose an adjustment of its emission reduction commitments already listed in annex II. Such a proposal must include supporting documentation, and shall be reviewed, as specified in a decision of the Executive Body. This review shall take place prior to the proposal being discussed by the Parties in accordance with paragraph 4.

3. Any Party eligible under article 3, paragraph 9, may propose an adjustment to annex III to add one or more PEMAs or make changes to a PEMA under its jurisdiction that is listed in that annex

4. Proposed adjustments shall be submitted in writing to the Executive Secretary of the Commission, who shall communicate them to all Parties. The Parties shall discuss the proposed adjustments at the next session of the Executive Body, provided that those proposals have been circulated by the Executive Secretary to the Parties at least ninety days in advance.

5. Adjustments shall be adopted by consensus of the Parties present at a session of the Executive Body and shall become effective for all Parties to the present Protocol on the ninetieth day following the date on which the Executive Secretary of the Commission notifies those Parties in writing of the adoption of the adjustment

Article 13 bis
Amendments

1. Any Party may propose amendments to the present Protocol

2. Proposed amendments shall be submitted in writing to the Executive Secretary of the Commission, who shall communicate them to all Parties. The Parties shall discuss the proposed amendments at the next session of the Executive Body, provided that those proposals have been circulated by the Executive Secretary to the Parties at least ninety days in advance.

3 Amendments to the present Protocol other than to annexes I and III shall be adopted by consensus of the Parties present at a session of the Executive Body, and shall enter into force for the Parties which have accepted them on the ninetieth day after the date on which two thirds of those that were Parties at the time of their adoption have deposited with the Depositary their instruments of acceptance thereof Amendments shall enter into force for any other Party on the ninetieth day after the date on which that Party has deposited its instrument of acceptance thereof

4 Amendments to annexes I and III to the present Protocol shall be adopted by consensus of the Parties present at a session of the Executive Body On the expiry of one hundred and eighty days from the date of its communication to all Parties by the Executive Secretary of the Commission, an amendment to any such annex shall become effective for those Parties which have not submitted to the Depositary a notification in accordance with the provisions of paragraph 5, provided that at least sixteen Parties have not submitted such a notification.

5 Any Party that is unable to approve an amendment to annexes I and/or III, shall so notify the Depositary in writing within ninety days from the date of the communication of its adoption The Depositary shall without delay notify all Parties of any such notification received A Party may at any time substitute an acceptance for its previous notification and, upon deposit of an instrument of acceptance with the Depositary, the amendment to such an annex shall become effective for that Party

6. For those Parties having accepted it, the procedure set out in paragraph 7 supersedes the procedure set out in paragraph 3 in respect of amendments to annexes IV to XI

7 Amendments to annexes IV to XI shall be adopted by consensus of the Parties present at a session of the Executive Body On the expiry of one year from the date of its communication to all Parties by the Executive Secretary of the Commission, an amendment to any such annex shall become effective for those Parties which have not submitted to the Depositary a notification in accordance with the provisions of subparagraph (a)

(a) Any Party that is unable to approve an amendment to annexes IV to XI shall so notify the Depositary in writing within one year from the date of the communication of its adoption The Depositary shall without delay notify all Parties of any such notification received A Party may at any time substitute an acceptance for its previous notification and, upon deposit of an instrument of acceptance with the Depositary, the amendment to such an annex shall become effective for that Party,

(b) Any amendment to annexes IV to XI shall not enter into force if an aggregate number of sixteen or more Parties have either

(i) Submitted a notification in accordance with the provisions of subparagraph (a), or

(ii) Not accepted the procedure set out in this paragraph and not yet deposited an instrument of acceptance in accordance with the provisions of paragraph 3

M. Article 15

A new paragraph 4 is added as follows

4. A State or Regional Economic Integration Organisation shall declare in its instrument of ratification, acceptance, approval or accession if it does not intend to be bound by the procedures set out in article 13bis, paragraph 7, as regards the amendment of annexes IV – XI

N. New Article 18 bis

A new Article 18 bis is added after Article 18 as follows.

Article 18 bis
Termination of Protocols

When all of the Parties to any of the following Protocols have deposited their instruments of ratification, acceptance, approval of or accession to the present Protocol with the Depository in accordance with article 15, that Protocol shall be considered as terminated:

(a) The 1985 Helsinki Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent.

(b) The 1988 Sofia Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes.

(c) The 1991 Geneva Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes;

(d) The 1994 Oslo Protocol on Further Reduction of Sulphur Emissions

O. Annex II

For annex II the following text is substituted:

Emission reduction commitments

1 The emission reduction commitments listed in the tables below relate to the provisions of article 3, paragraphs 1 and 10, of the present Protocol

2. Table 1 includes the emission ceilings for sulphur dioxide (SO_2), nitrogen oxides (NO_x), ammonia (NH_3) and volatile organic compounds (VOCs) for 2010 up to 2020 expressed in thousands of metric tons (tonnes) for those Parties that ratified the present Protocol prior to 2010

3. Tables 2–6 include emission reduction commitments for SO_2, NO_x, NH_3, VOCs and $PM_{2.5}$ for 2020 and beyond These commitments are expressed as a percentage reduction from the 2005 emission level

4. The 2005 emission estimates listed in tables 2-6 are in thousands of tonnes and represent the latest best available data reported by the Parties in 2012 These estimates are given for information purposes only, and may be updated by the

Parties in the course of their reporting of emission data under the present Protocol if better information becomes available. The Secretariat will maintain and regularly update on the Convention's website a table of the most up-to-date estimates reported by Parties, for information. The percentage emission reduction commitments listed in tables 2-6 are applicable to the most up-to-date 2005 estimates as reported by the Parties to the Executive Secretary of the Commission.

5. If in a given year a Party finds that, due to a particularly cold winter, a particularly dry summer or unforeseen variations in economic activities, such as a loss of capacity in the power supply system domestically or in a neighbouring country, it cannot comply with its emission reduction commitments, it may fulfil those commitments by averaging its national annual emissions for the year in question, the year preceding that year and the year following it, provided that this average does not exceed its commitment

Table 1
Emission ceilings for 2010 up to 2020 for Parties that ratified the present Protocol prior to 2010 (expressed in thousands of tonnes per year)

	Party	*Ratification*	*SO_2*	*NO_x*	*NH_3*	*VOC's*
1	Belgium	2007	106	181	74	144
2	Bulgaria	2005	856	266	108	185
3	Croatia	2008	70	87	30	90
4	Cyprus	2007	39	23	9	14
5	Czech Republic	2004	283	286	101	220
6	Denmark	2002	55	127	69	85
7	Finland	2003	116	170	31	130
8	France	2007	400	860	780	1 100
9	Germany	2004	550	1 081	550	995
10	Hungary	2006	550	198	90	137
11	Latvia	2004	107	84	44	136
12	Lithuania	2004	145	110	84	92
13	Luxembourg	2001	4	11	7	9
14	Netherlands	2004	50	266	128	191
15	Norway	2002	22	156	23	195
16	Portugal	2005	170	260	108	202
17	Romania	2003	918	437	210	523
18	Slovakia	2005	110	130	39	140
19	Slovenia	2004	27	45	20	40
20	Spain[a]	2005	774	847	353	669
21	Sweden	2002	67	148	57	241
22	Switzerland	2005	26	79	63	144
23	United Kingdom of Great Britain and Northern Ireland	2005	625	1 181	297	1 200

	Party	Ratification	SO_2	NO_x	NH_3	VOCs
24	United States of America	2004	[b]	[c]		[d]
25	European Union	2003	7 832	8 180	4 294	7 585

[a] Figures apply to the European part of the country.

[b] Upon acceptance of the present Protocol in 2004, the United States of America provided an indicative target for 2010 of 16,013,000 tons for total sulphur emissions from the PEMA identified for sulphur, the 48 contiguous United States and the District of Columbia. This figure converts to 14,527,000 tonnes.

[c] Upon acceptance of the present Protocol in 2004, the United States of America provided an indicative target for 2010 of 6,897,000 tons for total NO_x emissions from the PEMA identified for NO_x, Connecticut, Delaware, the District of Columbia, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wisconsin. This figure converts to 6,257,000 tonnes.

[d] Upon acceptance of the present Protocol in 2004, the United States of America provided an indicative target for 2010 of 4,972,000 tons for total VOC emissions from the PEMA identified for VOCs, Connecticut, Delaware, the District of Columbia, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wisconsin. This figure converts to 4,511,000 tonnes.

Table 2
Emission reduction commitments for sulphur dioxide for 2020 and beyond

	Convention Party	Emission levels 2005 in thousands of tonnes of SO_2	Reduction from 2005 level (%)
1	Austria	27	26
2	Belarus	79	20
3	Belgium	115	43
4	Bulgaria	777	78
5	Canada[a]		
6	Croatia	63	55
7	Cyprus	38	83
8	Czech Republic	219	45
9	Denmark	23	35
10	Estonia	76	32
11	Finland	69	30
12	France	467	55
13	Germany	517	21
14	Greece	542	74
15	Hungary	129	46
16	Ireland	71	65
17	Italy	403	35
18	Latvia	67	8
19	Lithuania	44	55
20	Luxembourg	2.5	34
21	Malta	11	77
22	Netherlands[b]	65	28

	Convention Party	Emission levels 2005 in thousands of tonnes of SO_2	Reduction from 2005 level (%)
23	Norway	24	10
24	Poland	1 224	59
25	Portugal	177	63
26	Romania	643	77
27	Slovakia	89	57
28	Slovenia	40	63
29	Spain [b]	1 282	67
30	Sweden	36	22
31	Switzerland	17	21
32	United Kingdom of Great Britain and Northern Ireland	706	59
33	United States of America [c]		
34	European Union	7 828	59

[a] Upon ratification, acceptance or approval of, or accession to the present Protocol, Canada shall provide (a) a value for total estimated sulphur emission levels for 2005, either national or for its PEMA, if it has submitted one, and (b) an indicative value for a reduction of total sulphur emission levels for 2020 from 2005 levels either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be offered as an adjustment to annex III to the Protocol.

[b] Figures apply to the European part of the country.

[c] Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the present Protocol, the United States of America shall provide (a) a value for total estimated sulphur emission levels for 2005, either national or for a PEMA, (b) an indicative value for a reduction of total sulphur emission levels for 2020 from identified 2005 levels, and (c) any changes to the PEMA identified when the United States became a Party to the Protocol. Item (a) will be included in the table, item (b) will be included in a footnote to the table, and item (c) will be offered as an adjustment to annex III.

Table 3
Emission reduction commitments for nitrogen oxides for 2020 and beyond[a]

	Convention Party	Emission levels 2005 in thousands of tonnes of NO_2	Reduction from 2005 level (%)
1	Austria	231	37
2	Belarus	171	25
3	Belgium	291	41
4	Bulgaria	154	41
5	Canada [b]		
6	Croatia	81	31
7	Cyprus	21	44
8	Czech Republic	286	35
9	Denmark	181	56
10	Estonia	36	18
11	Finland	177	35

	Convention Party	*Emission levels 2005 in thousands of tonnes of NO_2*	*Reduction from 2005 level (%)*
12	France	1 430	50
13	Germany	1 464	39
14	Greece	419	31
15	Hungary	203	34
16	Ireland	127	49
17	Italy	1 212	40
18	Latvia	37	32
19	Lithuania	58	48
20	Luxembourg	19	43
21	Malta	9 3	42
22	Netherlands [a]	370	45
23	Norway	200	23
24	Poland	866	30
25	Portugal	256	36
26	Romania	309	45
27	Slovakia	102	36
28	Slovenia	47	39
29	Spain [a]	1 292	41
30	Sweden	174	36
31	Switzerland [d]	94	41
32	United Kingdom of Great Britain and Northern Ireland	1 580	55
33	United States of America [e]		
34	European Union	11 354	42

[a] Emissions from soils are not included in the 2005 estimates for EU member States

[b] Upon ratification, acceptance or approval of, or accession to the present Protocol, Canada shall provide (a) a value for total estimated nitrogen oxide emission levels for 2005, either national or for its PEMA, if it has submitted one, and (b) an indicative value for a reduction of total nitrogen oxide emission levels for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be offered as an adjustment to annex III to the Protocol.

[c] Figures apply to the European part of the country

[d] Including emissions from crop production and agricultural soils (NFR 4D)

[e] Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the present Protocol, the United States of America shall provide: (a) a value for total estimated nitrogen oxides emission levels for 2005, either national or for a PEMA; (b) an indicative value for a reduction of total nitrogen oxides emission levels for 2020 from identified 2005 levels; and (c) any changes to the PEMA identified when the United States became a Party to the Protocol. Item (a) will be included in the table, item (b) will be included in a footnote to the table, and item (c) will be offered as an adjustment to annex III.

Table 4
Emission reduction commitments for ammonia for 2020 and beyond

	Convention Party	*Emission levels 2005 in thousands of tonnes of NH₃*	*Reduction from 2005 level (%)*
1	Austria	63	1
2	Belarus	136	7
3	Belgium	71	2
4	Bulgaria	60	3
5	Croatia	40	1
6	Cyprus	5 8	10
7	Czech Republic	82	7
8	Denmark	83	24
9	Estonia	9.8	1
10	Finland	39	20
11	France	661	4
12	Germany	573	5
13	Greece	68	7
14	Hungary	80	10
15	Ireland	109	1
16	Italy	416	5
17	Latvia	16	1
18	Lithuania	39	10
19	Luxembourg	5 0	1
20	Malta	1 6	4
21	Netherlands [a]	141	13
22	Norway	23	8
23	Poland	270	1
24	Portugal	50	7
25	Romania	199	13
26	Slovakia	29	15
27	Slovenia	18	1
28	Spain[a]	365	3
29	Sweden	55	15
30	Switzerland	64	8
31	United Kingdom of Great Britain and Northern Ireland	307	8
32	European Union	3 813	6

[a] Figures apply to the European part of the country

Table 5
Emission reduction commitments for Volatile Organic Compounds for 2020 and beyond

	Convention Party	*Emission levels 2005 in thousands of tonnes of VOC*	*Reduction from 2005 level (%)*
1	Austria	162	21
2	Belarus	349	15
3	Belgium	143	21
4	Bulgaria	158	21
5	Canada [a]		
6	Croatia	101	34
7	Cyprus	14	45
8	Czech Republic	182	18
9	Denmark	110	35
10	Estonia	41	10
11	Finland	131	35
12	France	1 232	43
13	Germany	1 143	13
14	Greece	222	54
15	Hungary	177	30
16	Ireland	57	25
17	Italy	1 286	35
18	Latvia	73	27
19	Lithuania	84	32
20	Luxembourg	98	29
21	Malta	33	23
22	Netherlands[b]	182	8
23	Norway	218	40
24	Poland	593	25
25	Portugal	207	18
26	Romania	425	25
27	Slovakia	73	18
28	Slovenia	37	23
29	Spain[b]	809	22
30	Sweden	197	25
31	Switzerland [c]	103	30
32	United Kingdom of Great Britain and Northern Ireland	1 088	32
33	United States of America [d]		
34	European Union	8 842	28

[a] Upon ratification, acceptance or approval of, or accession to the present Protocol, Canada shall provide: (a) a value for total estimated VOC emission levels for 2005, either national or for its PEMA, if it has submitted one; and (b) an indicative value for a reduction of total VOC

emission levels for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be offered as an adjustment to annex III to the Protocol.

[b] Figures apply to the European part of the country.

[c] Including emissions from crop production and agricultural soils (NFR 4D).

[d] Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the present Protocol, the United States of America shall provide: (a) a value for total estimated VOC emission levels for 2005, either national or for a PEMA; (b) an indicative value for a reduction of total VOC emission levels for 2020 from identified 2005 levels; and (c) any changes to the PEMA identified when the United States became a Party to the Protocol. Item (a) will be included in the table, item (b) will be included in a footnote to the table, and item (c) will be offered as an adjustment to annex III.

Table 6
Emission reduction commitments for $PM_{2.5}$ for 2020 and beyond

	Convention Party	*Emission levels 2005 in thousands of tonnes of $PM_{2.5}$*	*Reduction from 2005 level (%)*
1	Austria	22	20
2	Belarus	46	10
3	Belgium	24	20
4	Bulgaria	44	20
5	Canada[d]		
6	Croatia	13	18
7	Cyprus	2.9	46
8	Czech Republic	22	17
9	Denmark	25	33
10	Estonia	20	15
11	Finland	36	30
12	France	304	27
13	Germany	121	26
14	Greece	56	35
15	Hungary	31	13
16	Ireland	11	18
17	Italy	166	10
18	Latvia	27	16
19	Lithuania	8.7	20
20	Luxembourg	3.1	15
21	Malta	1.3	25
22	Netherlands[b]	21	37
23	Norway	52	30
24	Poland	133	16
25	Portugal	65	15
26	Romania	106	28
27	Slovakia	37	36
28	Slovenia	14	25

	Convention Party	*Emission levels 2005 in thousands of tonnes of $PM_{2.5}$*	*Reduction from 2005 level (%)*
29	Spain[b]	93	15
30	Sweden	29	19
31	Switzerland	11	26
32	United Kingdom of Great Britain and Northern Ireland	81	30
33	United States of America[c]		
34	European Union	1 504	22

[a] Upon ratification, acceptance or approval of, or accession to the present Protocol, Canada shall provide: (a) a value for total estimated PM emission levels for 2005, either national or for its PEMA, if it has submitted one; and (b) an indicative value for a reduction of total emission levels of PM for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be offered as an adjustment to annex III to the Protocol.

[b] Figures apply to the European part of the country.

[c] Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the present Protocol, the United States of America shall provide: (a) a value for total estimated $PM_{2.5}$ emission levels for 2005, either national or for a PEMA; and (b) an indicative value for a reduction of total $PM_{2.5}$ emission levels for 2020 from identified 2005 levels. Item (a) will be included in the table and item (b) will be included in a footnote to the table.

P. Annex III

1. In the sentence underneath the heading, the words "PEMA is" are replaced by the words "PEMAs are".

2. A new subheading and paragraph are added before the entry for the Russian Federation PEMA as follows.

Canada PEMA

The PEMA for sulphur for Canada is an area of 1 million square kilometres which includes all the territory of the Provinces of Prince Edward Island, Nova Scotia and New Brunswick, all the territory of the Province of Québec south of a straight line between Havre-St. Pierre on the north coast of the Gulf of Saint Lawrence and the point where Québec-Ontario boundary intersects with the James Bay coastline, and all the territory of the Province of Ontario south of a straight line between the point where the Ontario-Québec boundary intersects the James Bay coastline and the Nipigon River near the north shore of Lake Superior.

3. For the paragraph underneath the subheading "Russian Federation PEMA" there is substituted:

The Russian Federation PEMA corresponds to the European territory of the Russian Federation. The European territory of the Russian Federation is a part of the territory of Russia within the administrative and geographical boundaries of the entities of the Russian Federation located in Eastern Europe bordering the Asian continent in accordance with the conventional borderline that passes from north to south along the Ural Mountains, the border with Kazakhstan to the Caspian Sea, then along the State borders with Azerbaijan and Georgia in the North Caucasus to the Black Sea.

Q. Annex IV

1. For annex IV the following text is substituted:

Limit values for emissions of sulphur from stationary sources

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2 For the purpose of this section "emission limit value" (ELV) means the quantity of SO_2 (or SO_x where mentioned as such) contained in the waste gases from an installation that is not to be exceeded. Unless otherwise specified, it shall be calculated in terms of mass of SO_2 (SO_x, expressed as SO_2) per volume of the waste gases (expressed as mg/m^3), assuming standard conditions for temperature and pressure for dry gas (volume at 273.15 K, 101 3 kPa). With regard to the oxygen content of the waste gas, the values given in the tables below for each source category shall apply. Dilution for the purpose of lowering concentrations of pollutants in waste gases is not permitted. Start-up, shutdown and maintenance of equipment are excluded.

3. Compliance with ELVs, minimum desulphurization rates, sulphur recovery rates and sulphur content limit values shall be verified:

(a) Emissions shall be monitored through measurements or through calculations achieving at least the same accuracy Compliance with ELVs shall be verified through continuous or discontinuous measurements, type approval, or any other technically sound method including verified calculation methods. In case of continuous measurements, compliance with the ELV is achieved if the validated monthly emission average does not exceed the limit value, unless otherwise specified for the individual source category. In case of discontinuous measurements or other appropriate determination or calculation procedures, compliance with the ELV is achieved if the mean value based on an appropriate number of measurements under representative conditions does not exceed the ELV. The inaccuracy of the measurement methods may be taken into account for verification purposes;

(b) In case of combustion plants applying the minimum rates of desulphurization set out in paragraph 5 (a) (ii), the sulphur content of the fuel shall also be regularly monitored and the competent authorities shall be informed of substantial changes in the type of fuel used. The desulphurization rates shall apply as monthly average values;

(c) Compliance with the minimum sulphur recovery rate shall be verified through regular measurements or any other technically sound method;

(d) Compliance with the sulphur limit values for gas oil shall be verified through regular targeted measurements.

4. Monitoring of relevant polluting substances and measurements of process parameters, as well as the quality assurance of automated measuring systems and the reference measurements to calibrate those systems, shall be carried out in

accordance with European Committee for Standardization (CEN) standards. If CEN standards are not available, International Organization for Standardization (ISO) standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply

5 The following subparagraphs set out special provisions for combustion plants referred to in paragraph 7:

(a) A Party may derogate from the obligation to comply with the emission limit values provided for in paragraph 7 in the following cases

(i) For a combustion plant which to this end normally uses low-sulphur fuel, in cases where the operator is unable to comply with those limit values because of an interruption in the supply of low-sulphur fuel resulting from a serious shortage.

(ii) For a combustion plant firing indigenous solid fuel, which cannot comply with the emission limit values provided for in paragraph 7, instead at least the following limit values for the rates of desulphurization have to be met:

(aa) Existing plants: 50–100 MWth: 80%.

(bb) Existing plants: 100–300 MWth 90%;

(cc) Existing plants: > 300 MWth: 95%.

(dd) New plants 50–300 MWth, 93%;

(ee) New plants > 300 MWth, 97%.

(iii) For combustion plants normally using gaseous fuel which have to resort exceptionally to the use of other fuels because of a sudden interruption in the supply of gas and for this reason would need to be equipped with a waste gas purification facility.

(iv) For existing combustion plants not operated more than 17,500 operating hours, starting from 1 January 2016 and ending no later than 31 December 2023,

(v) For existing combustion plants using solid or liquid fuels not operated more than 1,500 operating hours per year as a rolling average over a period of five years, instead the following ELVs apply:

(aa) For solid fuels 800 mg/m³,

(bb) For liquid fuels 850 mg/m³ for plants with a rated thermal input not exceeding 300 MWth and 400 mg/m³ for plants with a rated thermal input greater than 300 MWth,

(b) Where a combustion plant is extended by at least 50 MWth, the ELV specified in paragraph 7 for new installations shall apply to the extensional part affected by the change. The ELV is calculated as an average weighted by the *actual* thermal input for both the existing and the new part of the plant.

(c) Parties shall ensure that provisions are made for procedures relating to malfunction or breakdown of the abatement equipment:

(d) In the case of a multi-fuel firing combustion plant involving the simultaneous use of two or more fuels, the ELV shall be determined as the weighted average of the ELVs for the individual fuels, on the basis of the thermal input delivered by each fuel

6. Parties may apply rules by which combustion plants and process plants within a mineral oil refinery may be exempted from compliance with the individual SO_2 limit values set out in this annex, provided that they are complying with a bubble SO_2 limit value determined on the basis of the best available techniques

7. Combustion plants with a rated thermal input exceeding 50 MWth [1]

Table 1
Limit values for SO_2 emissions from combustion plants[a]

Fuel type	*Thermal input (MWth)*	*ELV for SO_2 mg m^{-3} [b]*
Solid fuels	50–100	New plants: 400 (coal, lignite and other solid fuels) 300 (peat) 200 (biomass)
		Existing plants: 400 (coal, lignite and other solid fuels) 300 (peat) 200 (biomass)
	100–300	New plants: 200 (coal, lignite and other solid fuels) 300 (peat) 200 (biomass)
		Existing plants: 250 (coal, lignite and other solid fuels) 300 (peat) 200 (biomass)
	>300	New plants: 150 (coal, lignite and other solid fuels) (FBC: 200) 150 (peat) (FBC: 200) 150 (biomass)
		Existing plants: 200 (coal, lignite and other solid fuels) 200 (peat) 200 (biomass)

[1] The rated thermal input of the combustion plant is calculated as the sum of the input of all units connected to a common stack. Individual units below 15 MWth shall not be considered when calculating the total rated thermal input.

Fuel type	*Thermal input (MWth)*	*ELV for SO_2 mg m^{-3} [b]*
Liquid fuels	50–100	New plants. 350
		Existing plants. 350
	100–300	New plants 200
		Existing plants· 250
	>300	New plants. 150
		Existing plants· 200
Gaseous fuels in general	>50	New plants 35
		Existing plants. 35
Liquefied gas	>50	New plants 5
		Existing plants 5
Coke oven gas or blast furnace gas	>50	New plants. 200 for blast furnace gas 400 for coke oven gas
		Existing plants 200 for blast furnace gas 400 for coke oven gas
Gasified refinery residues	> 50	New plants. 35 Existing plants 800

Note: FBC = fluidized bed combustion (circulating, pressurized, bubbling)

[a] In particular, the ELVs shall not apply to·

- Plants in which the products of combustion are used for direct heating, drying, or any other treatment of objects or materials,
- Post-combustion plants designed to purify the waste gases by combustion which are not operated as independent combustion plants;
- Facilities for the regeneration of catalytic cracking catalysts;
- Facilities for the conversion of hydrogen sulphide into sulphur.
- Reactors used in the chemical industry .
- Coke battery furnaces:
- Cowpers;
- Recovery boilers within installations for the production of pulp.
- Waste incinerators. and
- Plants powered by diesel. petrol or gas engines or by combustion turbines. irrespective of the fuel used.

[b] The O_2 reference content is 6% for solid fuels and 3% for liquid and gaseous fuels.

8. Gas oil:

Table 2
Limit values for the sulphur content of gas oil[a]

	Sulphur content (per cent by weight)
Gas oil	< 0 10

[a] "Gas oil" means any petroleum-derived liquid fuel, excluding marine fuel, falling within CN code 2710 19 25, 2710 19 29, 2710 19 45 or 2710 19 49, or any petroleum-derived liquid

fuel, excluding marine fuel, of which less than 65% by volume (including losses) distils at 250° C and of which at least 85% by volume (including losses) distils at 350° C by the ASTM D86 method. Diesel fuels, i.e., gas oils falling within CN code 2710 19 41 and used for self-propelling vehicles, are excluded from this definition. Fuels used in non-road mobile machinery and agricultural tractors are also excluded from this definition.

9. Mineral oil and gas refineries.

Sulphur recovery units: for plants that produce more than 50 Mg of sulphur a day:

Table 3
Limit value expressed as a minimum sulphur recovery rate of sulphur recovery units

Plant type	*Minimum sulphur recovery rate [a] (%)*
New plant	99.5
Existing plant	98.5

[a] The sulphur recovery rate is the percentage of the imported H_2S converted to elemental sulphur as a yearly average.

10. Titanium dioxide production

Table 4
Limit values for SO_x emissions released from titanium dioxide production (annual average)

Plant type	*ELV for SO_x (expressed as SO_2) (kg t of TiO_2)*
Sulphate process, total emission	6
Chloride process, total emission	1.7

B. Canada

11. Limit values for controlling emissions of sulphur oxides will be determined for stationary sources, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions, and the documents below:

(a) Order Adding Toxic Substances to Schedule 1 to the Canadian Environmental Act, 1999, SOR/2011-34;

(b) Proposed Regulation, Order Adding Toxic Substances to Schedule 1 to the Canadian Environmental Protection Act, 1999;

(c) New Source Emission Guidelines for Thermal Electricity Generation;

(d) National Emission Guidelines for Stationary Combustion Turbines, PN1072; and

(e) Operating and Emission Guidelines for Municipal Solid Waste Incinerators, PN1085.

C. United States of America

12 Limit values for controlling emissions of sulphur dioxide from stationary sources in the following stationary source categories, and the sources to which they apply, are specified in the following documents:

(a) Electric Utility Steam Generating Units — 40 Code of Federal Regulations (C.F.R.) Part 60, Subpart D, and Subpart Da;

(b) Industrial-Commercial-Institutional Steam Generating Units — 40 C.F.R. Part 60, Subpart Db, and Subpart Dc;

(c) Sulphuric Acid Plants — 40 C.F.R. Part 60, Subpart H;

(d) Petroleum Refineries — 40 C.F.R. Part 60, Subpart J and Subpart Ja;

(e) Primary Copper Smelters — 40 C.F.R. Part 60, Subpart P;

(f) Primary Zinc Smelters — 40 C.F.R. Part 60, Subpart Q;

(g) Primary Lead Smelters — 40 C.F.R. Part 60, Subpart R;

(h) Stationary Gas Turbines — 40 C.F.R. Part 60, Subpart GG;

(i) Onshore Natural Gas Processing — 40 C.F.R. Part 60, Subpart LLL;

(j) Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart Ea, and Subpart Eb;

(k) Hospital/Medical/Infectious Waste Incinerators — 40 C.F.R. Part 60, Subpart Ec;

(l) Stationary Combustion Turbines — 40 C.F.R. Part 60, Subpart KKKK;

(m) Small Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart AAAA;

(n) Commercial and Industrial Solid Waste Combustors — 40 C.F.R. Part 60, Subpart CCCC; and

(o) Other Solid Waste Combustors — 40 C.F.R. Part 60, Subpart EEEE.

R. Annex V

For annex V the following text is substituted:

Limit values for emissions of nitrogen oxides from stationary sources

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2. For the purpose of this section "emission limit value" (ELV) means the quantity of NO_x (sum of NO and NO_2, expressed as NO_2) contained in the waste

gases from an installation that is not to be exceeded Unless otherwise specified, it shall be calculated in terms of mass of NO_x per volume of the waste gases (expressed as mg/m^3), assuming standard conditions for temperature and pressure for dry gas (volume at 273 15 K, 101 3 kPa) With regard to the oxygen content of the waste gas, the values given in the tables below for each source category shall apply. Dilution for the purpose of lowering concentrations of pollutants in waste gases is not permitted Start-up, shutdown and maintenance of equipment are excluded.

3. Emissions shall be monitored in all cases via measurements of NO_x or through calculations or a combination of both achieving at least the same accuracy Compliance with ELVs shall be verified through continuous or discontinuous measurements, type approval, or any other technically sound method including verified calculation methods In case of continuous measurements, compliance with the ELVs is achieved if the validated monthly emission average does not exceed the limit values In case of discontinuous measurements or other appropriate determination or calculation procedures, compliance with the ELVs is achieved if the mean value based on an appropriate number of measurements under representative conditions does not exceed the ELV The inaccuracy of the measurement methods may be taken into account for verification purposes.

4. Monitoring of relevant polluting substances and measurements of process parameters, as well as the quality assurance of automated measuring systems and the reference measurements to calibrate those systems, shall be carried out in accordance with CEN standards If CEN standards are not available, ISO standards or national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply

5 Special provisions for combustion plants referred to in paragraph 6:

(a) A Party may derogate from the obligation to comply with the ELVs provided for in paragraph 6 in the following cases.

(i) For combustion plants normally using gaseous fuel which have to resort exceptionally to the use of other fuels because of a sudden interruption in the supply of gas and for this reason would need to be equipped with a waste gas purification facility.

(ii) For existing combustion plants not operated more than 17,500 operating hours, starting from 1 January 2016 and ending no later than 31 December 2023; or

(iii) For existing combustion plants other than onshore gas turbines (covered by paragraph 7) using solid or liquid fuels not operated more than 1,500 operating hours per year as a rolling average over a period of five years, instead the following ELVs apply:

(aa) For solid fuels: 450 mg/m^3,

(bb) For liquid fuels: 450 mg/m^3

(b) Where a combustion plant is extended by at least 50 MWth, the ELV specified in paragraph 6 for new installations shall apply to the extensional part affected by the change. The ELV is calculated as an average weighted by the *actual* thermal input for both the existing and the new part of the plant.

(c) Parties shall ensure that provisions are made for procedures relating to malfunction or breakdown of the abatement equipment.

(d) In the case of a multi-fuel firing combustion plant involving the simultaneous use of two or more fuels, the ELV shall be determined as the weighted average of the ELVs for the individual fuels, on the basis of the thermal input delivered by each fuel. Parties may apply rules by which combustion plants and process plants within a mineral oil refinery may be exempted from compliance with the individual NO_x limit values set out in this annex, provided that they are complying with a bubble NO_x limit value determined on the basis of the best available techniques.

6. Combustion plants with a rated thermal input exceeding 50 MWth.[2]

Table 1
Limit values for NO_x emissions released from combustion plants[a]

Fuel type	*Thermal input (MW th)*	*ELV for NO_x (mg m^{-3})[b]*
Solid fuels	50–100	New plants: 300 (coal, lignite and other solid fuels) 450 (pulverized lignite) 250 (biomass, peat) Existing plants: 300 (coal, lignite and other solid fuels) 450 (pulverized lignite) 300 (biomass, peat)
	100–300	New plants: 200 (coal, lignite and other solid fuels) 200 (biomass, peat) Existing plants: 200 (coal, lignite and other solid fuels) 250 (biomass, peat)
	>300	New plants: 150 (coal, lignite and other solid fuels) (general) 150 (biomass, peat) 200 (pulverized lignite) Existing plants: 200 (coal, lignite and other solid fuels) 200 (biomass, peat)

[2] The rated thermal input of the combustion plant is calculated as the sum of the input of all units connected to a common stack. Individual units below 15 MWth shall not be considered when calculating the total rated input

Fuel type	*Thermal input (MWth)*	*ELV for NO_x (mg m^{-3})[b]*
Liquid fuels	50–100	New plants 300
		Existing plants: 450
	100–300	New plants 150
		Existing plants: 200 (general) Existing plants within refineries and chemical installations: 450 (for firing of distillation and conversion residues from crude oil refining for own consumption in combustion plants and for firing liquid production residue as non-commercial fuel)
	>300	New plants 100
		Existing plants. 150 (general) Existing plants within refineries and chemical installations. 450 (for firing of distillation and conversion residues from crude oil refining for own consumption in combustion plants and for firing liquid production residue as non-commercial fuel (< 500 MWth))
Natural gas	50–300	New plants. 100
		Existing plants: 100
	>300	New plants: 100
		Existing plants: 100
Other gaseous fuels	>50	New plants: 200
		Existing plants: 300

[a] In particular, the ELVs shall not apply to
- Plants in which the products of combustion are used for direct heating, drying, or any other treatment of objects or materials,
- Post-combustion plants designed to purify the waste gases by combustion which are not operated as independent combustion plants;
- Facilities for the regeneration of catalytic cracking catalysts;
- Facilities for the conversion of hydrogen sulphide into sulphur,
- Reactors used in the chemical industry,
- Coke battery furnaces;
- Cowpers;
- Recovery boilers within installations for the production of pulp,
- Waste incinerators; and
- Plants powered by diesel, petrol or gas engines or by combustion turbines, irrespective of the fuel used

[b] The O_2 reference content is 6% for solid fuels and 3% for liquid and gaseous fuels.

7. Onshore combustion turbines with a rated thermal input exceeding 50 MWth the NO_x ELVs expressed in mg/m^3 (at a reference O_2 content of 15%) are to be applied to a single turbine. The ELVs in table 2 apply only above 70% load

Table 2
Limit values for NO_x emissions released from onshore combustion turbines (including Combined Cycle Gas turbines (CCGT))

Fuel type	*Thermal input (MW th)*	*ELV for NO_x (mg m^{-3})[a]*
Liquid fuels (light and medium distillates)	> 50	New plants: 50 Existing plants: 90 (general) 200 (plants operating less than 1 500 hours a year)
Natural gas[b]	> 50	New plants: 50 (general)[c] Existing plants: 50 (general)[c,d] 150 (plants operating less than 1 500 hours per year)
Other gases	> 50	New plants. 50 Existing plants: 120 (general) 200 (plants operating less than 1 500 hours a year)

[a] Gas turbines for emergency use that operate less than 500 hours per year are not covered

[b] Natural gas is naturally occurring methane with not more than 20% (by volume) of inert gases and other constituents

[c] 75 mg/m^3 in the following cases, where the efficiency of the gas turbine is determined at ISO base load conditions.

- Gas turbines, used in combined heat and power systems having an overall efficiency greater than 75%.
- Gas turbines used in combined cycle plants having an annual average overall electrical efficiency greater than 55%.
- Gas turbines for mechanical drives

[d] For single gas turbines not falling into any of the categories mentioned under footnote c/. but having an efficiency greater than 35% determined at ISO base load conditions the ELV for NO_x shall be 50 \ η / 35 where η is the gas-turbine efficiency at ISO base load conditions expressed as a percentage

8. Cement production:

Table 3
Limit values for NO_x emissions released from cement clinker production[a]

Plant type	*ELV for NO_x (mg m^{-3})*
General (existing and new installations)	500
Existing lepol and long rotary kilns in which no waste is co-incinerated	800

[a] Installations for the production of cement clinker in rotary kilns with a capacity >500 Mg/day or in other furnaces with a capacity >50 Mg/day The O_2 reference content is 10%

9 Stationary engines

Table 4
Limit values for NO_x emissions released from new stationary engines

Engine type, power, fuel specification	*ELV[a,b,c] (mg/m³)*
Gas engines > 1 MWth	
Spark ignited (=Otto) engines all gaseous fuels	95 (enhanced lean burn) 190 (Standard lean burn or rich burn with catalyst)
Dual fuel engines > 1 MWth	
In gas mode (all gaseous fuels)	190
In liquid mode (all liquid fuels)[d]	
1–20 MWth	225
>20 MWth	225
Diesel engines > 5 MWth (compression ignition)	
Slow (< 300 rpm) Medium (300-1 200 rpm) speed	
5–20 MWth	
Heavy Fuel Oil (HFO) and bio-oils	225
Light Fuel Oil (LFO) and Natural Gas (NG)	190
>20 MWth	
HFO and bio-oils	190
LFO and NG	190
High speed (> 1 200 rpm)	190

Note The reference oxygen content is 15%[3]

[a] These ELVs do not apply to engines running less than 500 hours a year

[b] Where Selective Catalytic Reduction (SCR) cannot currently be applied for technical and logistical reasons like on remote islands or where the availability of sufficient amounts of high quality fuel cannot be guaranteed, a transition period of 10 years after the entry into force of the present Protocol for a Party may be applied for diesel engines and dual fuel engines during which the following ELVs apply

- Dual fuel engines 1,850 mg/m³ in liquid mode, 380 mg/m³ in gas mode;
- Diesel engines — Slow (< 300 rpm) and Medium (300–1,200 rpm)/speed 1,300 mg/m³ for engines between 5 and 20 MWth and 1,850 mg/m³ for engines > 20 MWth.
- Diesel engines — High speed (> 1200 rpm) 750 mg/m³

[c] Engines running between 500 and 1,500 operational hours per year may be exempted from compliance with these ELVs in case they are applying primary measures to limit NO_x emissions and meet the ELVs set out in footnote b.

[d] A Party may derogate from the obligation to comply with the emission limit values for combustion plants using gaseous fuel which have to resort exceptionally to the use of other fuels because of a sudden interruption in the supply of gas and for this reason would need to be equipped with a waste gas purification facility. The exception time period shall not exceed 10 days except where there it is an overriding need to maintain energy supplies.

[3] The conversion factor from the limit values in the current Protocol (at 5% oxygen content) is 2,66 (16/6)
Thus, the limit value of
- 190 mg/m³ at 15 % O_2 corresponds to 500 mg/m³ at 5 % O_2,
- 95 mg/m³ at 15 % O_2 corresponds to 250 mg/m³ at 5 % O_2;
- 225 mg/m³ at 15 % O_2 corresponds to 600 mg/m³ at 5 % O_2

10 Iron ore sinter plants:

Table 5
Limit values for NO_x emissions released from iron ore sinter plants

Plant type	*ELV for NO_x (mg m^3)*
Sinter plants: New installation	400
Sinter plants: Existing installation	400

[a] Production and processing of metals: metal ore roasting or sintering installations, installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting with a capacity exceeding 2.5 Mg/hour, installations for the processing of ferrous metals (hot rolling mills > 20 Mg/hour of crude steel)

[b] As an exemption to paragraph 3, these ELVs should be considered as averaged over a substantial period of time

11 Nitric acid production

Table 6
Limit values for NO_x emissions from nitric acid production excluding acid concentration units

Type of installation	*ELV for NO_x (mg m^3)*
New installations	160
Existing installations	190

B. Canada

12. *Limit values for controlling emissions of NO_x will be determined for* stationary sources, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions, and the documents below.

(a) New Source Emission Guidelines for Thermal Electricity Generation;

(b) National Emission Guidelines for Stationary Combustion Turbines, PN1072,

(c) National Emission Guidelines for Cement Kilns, PN1284;

(d) National Emission Guidelines for Industrial/Commercial Boilers and Heaters, PN1286,

(e) Operating and Emission Guidelines for Municipal Solid Waste Incinerators, PN1085,

(f) Management Plan for Nitrogen Oxides (NO_x) and Volatile Organic Compounds (VOCs) — Phase I, PN1066, and

(g) Operating and Emission Guidelines for Municipal Solid Waste Incinerators PN1085

C. United States of America

13. Limit values for controlling emissions of NO_x from stationary sources in the following stationary source categories, and the sources to which they apply, are specified in the following documents:

(a) Coal-fired Utility Units — 40 Code of Federal Regulations (C.F.R.) Part 76;

(b) Electric Utility Steam Generating Units — 40 C.F.R. Part 60, Subpart D, and Subpart Da;

(c) Industrial-Commercial-Institutional Steam Generating Units — 40 C.F.R. Part 60, Subpart Db;

(d) Nitric Acid Plants — 40 C.F.R. Part 60, Subpart G;

(e) Stationary Gas Turbines — 40 C.F.R. Part 60, Subpart GG;

(f) Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart Ea, and Subpart Eb;

(g) Hospital/Medical/Infectious Waste Incinerators — 40 C.F.R. Part 60, Subpart Ec;

(h) Petroleum Refineries — 40 C.F.R. Part 60, Subpart J, and Subpart Ja;

(i) Stationary Internal Combustion Engines — Spark Ignition, 40 C.F.R. Part 60, Subpart JJJJ;

(j) Stationary Internal Combustion Engines — Compression Ignition, 40 C.F.R. Part 60, Subpart IIII;

(k) Stationary Combustion Turbines — 40 C.F.R. Part 60, Subpart KKKK;

(l) Small Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart AAAA;

(m) Portland Cement —40 C.F.R. Part 60, Subpart F;

(n) Commercial and Industrial Solid Waste Combustors — 40 C.F.R. Part 60, Subpart CCCC; and

(o) Other Solid Waste Combustors — 40 C.F.R. Part 60, Subpart EEEE

S. Annex VI

For annex VI, the following text is substituted:

Limit values for emissions of volatile organic compounds from stationary sources

1 Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2. This section of the present annex covers the stationary sources of VOC emissions listed in paragraphs 8 to 22 below. Installations or parts of installations for research, development and testing of new products and processes are not covered Threshold values are given in the sector-specific tables below. They generally refer to solvent consumption or emission mass flow. Where one operator carries out several activities falling under the same subheading at the same installation on the same site, the solvent consumption or emission mass flow of such activities are added together If no threshold value is indicated, the given limit value applies to all the installations concerned

3. For the purpose of section A of the present annex

(a) "Storage and distribution of petrol" means the loading of trucks, railway wagons, barges and seagoing ships at depots and mineral oil refinery dispatch stations, including vehicle refuelling at service stations,

(b) "Adhesive coating" means any activity in which an adhesive is applied to a surface, with the exception of adhesive coating and laminating associated with printing activity and wood and plastic lamination:

(c) "Wood and plastic lamination" means any activity to adhere together wood and/or plastic to produce laminated products,

(d) "Coating activity" means any activity in which a single or multiple application of a continuous film of coating is laid onto.

(i) New vehicles defined as vehicles of category M1 and of category N1 insofar as they are coated at the same installation as M1 vehicles.

(ii) Truck cabins, defined as the housing for the driver, and all integrated housing for the technical equipment of category N2 and N3 vehicles,

(iii) Vans and trucks defined as category N1, N2 and N3 vehicles, but excluding truck cabins,

(iv) Buses defined as category M2 and M3 vehicles;

(v) Other metallic and plastic surfaces including those of aeroplanes, ships, trains, etc..

(vi) Wooden surfaces,

(vii) Textile, fabric, film and paper surfaces, and

(viii) Leather:

This source category does not include the coating of substrates with metals by electrophoretic or chemical spraying techniques If the coating activity includes a step in which the same article is printed, that printing step is considered part of the coating activity However, printing activities operated as a separate activity are not covered by this definition. In this definition,

- M1 vehicles are those used for the carriage of passengers and comprising not more than eight seats in addition to the driver's seat:
- M2 vehicles are those used for the carriage of passengers and comprising more than eight seats in addition to the driver's seat, and having a maximum mass not exceeding 5 Mg,

- M3 vehicles are those used for the carriage of passengers and comprising more than eight seats in addition to the driver's seat, and having a maximum mass exceeding 5 Mg.
- N1 vehicles are those used for the carriage of goods and having a maximum mass not exceeding 3.5 Mg.
- N2 vehicles are those used for the carriage of goods and having a maximum mass exceeding 3.5 Mg but not exceeding 12 Mg
- N3 vehicles are those used for the carriage of goods and having a maximum mass exceeding 12 Mg.

(e) "Coil coating" means any activity where coiled steel, stainless steel, coated steel, copper alloys or aluminium strip is coated with either a film-forming or laminate coating in a continuous process.

(f) "Dry cleaning" means any industrial or commercial activity using VOCs in an installation to clean garments furnishings and similar consumer goods with the exception of the manual removal of stains and spots in the textile and clothing industry.

(g) "Manufacturing of coatings, varnishes, inks and adhesives" means the manufacture of coating preparations, varnishes inks and adhesives and of intermediates as far as they are produced in the same installation by mixing pigments, resins and adhesive materials with organic solvents or other carriers This category also includes dispersion, predispersion, realization of a certain viscosity or colour and packing the final products in containers

(h) "Printing" means any activity of reproduction of text and/or images in which, with the use of an image carrier, ink is transferred onto a surface and applies to the following subactivities

(i) Flexography a printing activity using an image carrier of rubber or elastic photopolymers on which the printing inks are above the non-printing areas, using liquid inks that dry through evaporation.

(ii) Heat-set web offset a web-fed printing activity using an image carrier in which the printing and non-printing areas are in the same plane, where web-fed means that the material to be printed is fed to the machine from a reel as distinct from separate sheets The non-printing area is treated to attract water and thus reject ink The printing area is treated to receive and transmit ink to the surface to be printed. Evaporation takes place in an oven where hot air is used to heat the printed material.

(iii) Publication rotogravure rotogravure used for printing paper for magazines, brochures, catalogues or similar products, using toluene-based inks,

(iv) Rotogravure a printing activity using a cylindrical image carrier in which the printing area is below the non-printing area, using liquid inks that dry through evaporation The recesses are filled with ink and the surplus is cleaned off the non–printing area before the surface to be printed contacts the cylinder and lifts the ink from the recesses.

(v) Rotary screen printing a web-fed printing process in which the ink is passed onto the surface to be printed by forcing it through a porous image carrier, in which the printing area is open and the non-printing area is sealed

off, using liquid inks that dry only through evaporation. Web-fed means that the material to be printed is fed to the machine from a reel as distinct from separate sheets.

(vi) Laminating associated to a printing activity: the adhering of two or more flexible materials to produce laminates; and

(vii) Varnishing: an activity by which a varnish or an adhesive coating is applied to a flexible material for the purpose of later sealing the packaging material.

(i) "Manufacturing of pharmaceutical products" means chemical synthesis, fermentation, extraction, formulation and finishing of pharmaceutical products and, where carried out at the same site, the manufacture of intermediate products.

(j) "Conversion of natural or synthetic rubber" means any activity of mixing, crushing, blending, calendering, extruding and vulcanization of natural or synthetic rubber and additionally activities for the processing of natural or synthetic rubber to derive an end product.

(k) "Surface cleaning" means any activity except dry cleaning using organic solvents to remove contamination from the surface of material, including degreasing, a cleaning activity consisting of more than one step before or after any other processing step is considered as one surface-cleaning activity. The activity refers to the cleaning of the surface of products and not to the cleaning of process equipment.

(l) "Standard conditions" means a temperature of 273.15 K and a pressure of 101.3 kPa.

(m) "Organic compound" means any compound containing at least the element carbon and one or more of hydrogen, halogens, oxygen, sulphur, phosphorus, silicon or nitrogen, with the exception of carbon oxides and inorganic carbonates and bicarbonates.

(n) "Volatile organic compound" (VOC) means any organic compound as well as the fraction of creosote having at 293.15 K a vapour pressure of 0.01 kPa or more, or having a corresponding volatility under the particular conditions of use.

(o) "Organic solvent" means any VOC which is used alone or in combination with other agents, and without undergoing a chemical change, to dissolve raw material, products or waste materials, or is used as a cleaning agent to dissolve contaminants, or as a dissolver, or as a dispersion medium, or as a viscosity adjuster, or as a surface tension adjuster, or a plasticizer, or as a preservative.

(p) "Waste gases" means the final gaseous discharge containing VOCs or other pollutants from a stack or from emission abatement equipment into air. The volumetric flow rates shall be expressed in m^3/h at standard conditions.

(q) "Extraction of vegetable oil and animal fat and refining of vegetable oil" means the extraction of vegetable oil from seeds and other vegetable matter, the processing of dry residues to produce animal feed, and the purification of fats and vegetable oils derived from seeds, vegetable matter and/or animal matter.

(r) "Vehicle refinishing" means any industrial or commercial coating activity and associated degreasing activities performing

(i) The original coating of road vehicles, or part of them, with refinishing-type materials, where this is carried out away from the original manufacturing line, or the coating of trailers (including semi-trailers),

(ii) Vehicle refinishing, defined as the coating of road vehicles, or part of them, carried out as part of vehicle repair, conservation or decoration outside manufacturing installations, is not covered by this annex The products used as part of this activity are considered in annex XI

(s) "Wood impregnation" means any activity giving a loading of preservative in timber;

(t) "Winding wire coating" means any coating activity of metallic conductors used for winding the coils in transformers and motors, etc .

(u) "Fugitive emission" means any emission, not in waste gases, of VOCs into air, soil and water as well as, unless otherwise stated, solvents contained in any product, this includes uncaptured emissions of VOCs released to the outside environment via windows, doors, vents and similar openings Fugitive emissions may be calculated on the basis of a solvent management plan (see appendix I to the present annex),

(v) "Total emission of VOCs" means the sum of fugitive emission of VOCs and emission of VOCs in waste gases.

(w) "Input" means the quantity of organic solvents and their quantity in preparations used when carrying out a process, including the solvents recycled inside and outside the installation, and which are counted every time they are used to carry out the activity.

(x) "Emission limit value" (ELV) means the maximum quantity of VOC (except methane) emitted from an installation which is not to be exceeded during normal operation For waste gases, it is expressed in terms of mass of VOC per volume of waste gases (expressed as mg C/m^3 unless specified otherwise), assuming standard conditions for temperature and pressure for dry gas Gas volumes that are added to the waste gas for cooling or dilution purposes shall not be considered when determining the mass concentration of the pollutant in the waste gases Emission limit values for waste gases are indicated as ELVc, emission limit values for fugitive emissions are indicated as ELVf.

(y) "Normal operation" means all periods of operation except start-up and shutdown operations and maintenance of equipment.

(z) "Substances harmful to human health" are subdivided into two categories

(i) Halogenated VOCs that have possible risk of irreversible effects, or

(ii) Hazardous substances that are carcinogens, mutagens or toxic to reproduction or that may cause cancer, may cause heritable genetic damage, may cause cancer by inhalation, may impair fertility or may cause harm to the unborn child

(aa) "Footwear manufacture" means any activity of producing complete footwear or part of it,

(bb) "Solvent consumption" means the total input of organic solvents into an installation per calendar year, or any other 12-month period, less any VOCs that are recovered for reuse.

4. The following requirements shall be satisfied:

(a) Emissions shall be monitored in all cases via measurements or through calculations[1] achieving at least the same accuracy. Compliance with ELVs shall be verified through continuous or discontinuous measurements, type approval, or any other technically sound method. For the emissions in waste gases, in case of continuous measurements, compliance with the ELVs is achieved if the validated daily emission average does not exceed the ELVs. In case of discontinuous measurements or other appropriate determination procedures, compliance with the ELVs is achieved if the average of all the readings or other procedures within one monitoring exercise does not exceed the limit values. The inaccuracy of the measurement methods may be taken into account for verification purposes. The fugitive and total ELVs apply as annual averages;

(b) The concentrations of air pollutants in gas-carrying ducts shall be measured in a representative way. Monitoring of relevant polluting substances and measurements of process parameters, as well as the quality assurance of automated systems and the reference measurements to calibrate those systems, shall be carried out in accordance with CEN standards. If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply.

5. The following ELVs apply for waste gases containing substances harmful to human health:

(a) 20 mg/m^3 (expressed as the mass sum of individual compounds) for discharges of halogenated VOCs, which are assigned the following risk phrases, "suspected of causing cancer" and/or "suspected of causing genetic defects", where the mass flow of the sum of the considered compounds is greater than or equal to 100 g/h; and

(b) 2 mg/m^3 (expressed as the mass sum of individual compounds) for discharges of VOCs, which are assigned the following risk phrases, "may cause cancer", "may cause genetic defects", "may cause cancer by inhalation", "may damage fertility", "may damage the unborn child", where the mass flow of the sum of the considered compounds is greater than or equal to 10 g/h.

6. For the source categories listed in paragraphs 9 to 22 where it is demonstrated that for an individual installation compliance with the fugitive emission limit value (ELVf) is not technically and economically feasible, a Party may exempt that installation provided that significant risks to human health or the environment are not expected and that the best available techniques are used.

7. The limit values for VOC emissions for the source categories defined in paragraph 3 shall be as specified in paragraphs 8 to 22 below.

8. Storage and distribution of petrol:

(a) Petrol storage installations at terminals, when above the threshold values mentioned in table 1, must be either:

[1] Methods of calculation will be reflected in guidance adopted by the Executive Body.

(i) Fixed-roof tanks, which are connected to a vapour recovery unit meeting the ELVs set out in table 1; or

(ii) Designed with a floating roof, either external or internal, equipped with primary and secondary seals meeting the reduction efficiency set out in table 1.

(b) As a derogation from the above-mentioned requirements, fixed-roof tanks, which were in operation prior to 1 January 1996 and which are not connected to a vapour recovery unit, must be equipped with a primary seal which is achieving a reduction efficiency of 90%.

Table 1
Limit values for VOC emissions from the storage and distribution of petrol, excluding the loading of seagoing ships (stage I)

Activity	*Threshold value*	*ELV or reduction efficiency*
Loading and unloading of mobile container at terminals	5 000 m^3 petrol throughput annually	10g VOC/m^3 including methane[a]
Storage installations at terminals	Existing terminals or tank farms with a petrol throughput of 10 000 Mg/year or more New terminals (without thresholds except for terminals located in small remote islands with a throughput less than 5 000 Mg/year)	95 wt-%[b]
Service stations	Petrol throughput larger than 100 m^3/year	0.01wt-% of the throughput[c]

[a] The vapour displaced by the filling of petrol storage tanks shall be displaced either into other storage tanks or into abatement equipment meeting the limit values in the table above

[b] Reduction efficiency expressed in % compared to a comparable fixed-roof tank with no vapour-containment controls, i.e., with only a vacuum/pressure relief valve

[c] Vapours displaced by the delivery of petrol into storage installations at service stations and in fixed-roof tanks used for the intermediate storage of vapours must be returned through a vapour-tight connection line to the mobile container delivering the petrol. Loading operations may not take place unless the arrangements are in place and properly functioning. Under these conditions, no additional monitoring of the compliance with the limit value is required.

Table 2
Limit values for VOC emissions for car refuelling at service station (stage II)

Threshold values	*Minimum vapour capture efficiency wt- %*[a]
New service station if its actual or intended throughput is greater than 500 m^3 per annum Existing service station if its actual or intended throughput is greater than 3 000 m^3 per annum as of 2019	Equal to or greater than 85% wt-% with a vapour / petrol ration equal to or greater than 0 95 but less than or equal to 1.05 (v/v).
Existing service station if its actual or intended throughput is greater than 500 m^3 per annum and which undergoes a major refurbishment	

[a] The capture efficiency of the systems has to be certified by the manufacturer in accordance with relevant technical standards or type approval procedures

9. Adhesive coating

Table 3
Limit values for adhesive coating

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Footwear manufacture (solvent consumption > 5 Mg/year)	25[a] g VOC / pair of shoes
Other adhesive coating (solvent consumption 5–15 Mg/year)	ELVc = 50 mg[b] C/m^3 ELVf = 25 wt-% or less of the solvent input *Or* total ELV of 1.2 kg or less of VOC/kg of solid input
Other adhesive coating (solvent consumption 15–200 Mg/year)	ELVc = 50 mg[b] C/m^3 ELVf = 20 wt-% or less of the solvent input *Or* total ELV of 1 kg or less of VOC/kg of solid input
Other adhesive coating (solvent consumption > 200 Mg/year)	ELVc = 50 mg[c] C/m^3 ELVf = 15 wt-% or less of the solvent input *Or* total ELV of 0.8 kg or less of VOC/kg of solid input

[a] Total ELVs are expressed in grams of solvent emitted per pair of complete footwear produced.

[b] If techniques are used which allow reuse of recovered solvent, the limit value shall be 150 mg C/m^3.

[c] If techniques are used which allow reuse of recovered solvent, the limit value shall be 100 mg C/m^3

10 Wood and plastic lamination

Table 4
Limit values for wood and plastic lamination

Activity and threshold	*ELV for VOC (yearly)*
Wood and plastic laminating (solvent consumption > 5 Mg/year)	Total ELV of 30 g VOC/m² of final product

11. Coating activities (vehicle coating industry).

Table 5
Limit values for coating activities in the vehicle industry

Activity and threshold	*ELV for VOC (yearly for total ELV)*
Manufacture of cars (M1, M2) (solvent consumption > 15 Mg/year and ≤ 5 000 coated items a year or > 3 500 chassis built)	90 g VOC/m² or 1.5 kg/ body + 70 g/m²
Manufacture of cars (M1, M2) (solvent consumption 15–200 Mg/year and > 5 000 coated items a year)	*Existing installations*: 60g VOC/m² or 1.9 kg/ body + 41 g/m² *New installations* 45 g VOC/m² or 1.3 kg/body + 33 g/m²
Manufacture of cars (M1, M2) (solvent consumption > 200 Mg/year and > 5 000 coated items a year)	35 g VOC/m² or 1 kg/body + 26 g/m² [b]
Manufacture of truck cabins (N1, N2, N3) (solvent consumption > 15 Mg/year and ≤ 5 000 coated items/year)	*Existing installations*. 85 g VOC/m² *New installations* 65 g VOC/m²
Manufacture of truck cabins (N1, N2, N3) (solvent consumption 15–200 Mg/year and > 5 000 coated items a year)	*Existing installations:* 75 g VOC/m² *New installations* 55 g VOC/m²
Manufacture of truck cabins (N1, N2, N3) (solvent consumption > 200 Mg/year and > 5 000 coated items a year)	55 g VOC/m²
Manufacture of trucks and vans (solvent consumption > 15 Mg/year and ≤ 2 500 coated items a year)	*Existing installations*. 120 g VOC/m² *New installations* 90 g VOC/m²
Manufacture of trucks and vans (solvent consumption 15–200 Mg/year and > 2 500 coated items a year)	*Existing installations*: 90 g VOC/m² *New installations* 70 g VOC/m²

Activity and threshold	*ELV for VOC[a] (yearly for total ELV)*
Manufacture of trucks and vans (solvent consumption > 200 Mg/year and > 2 500 coated items a year)	50 g VOC/m²
Manufacture of buses (solvent consumption > 15 Mg/year and ≤ 2 000 coated items a year)	*Existing installations*: 290 g VOC/m² *New installations* 210 g VOC/m²
Manufacture of buses (solvent consumption 15–200 Mg/year and > 2 000 coated items a year)	*Existing installations*: 225 g VOC/m² *New installations* 150 g VOC/m²
Manufacture of buses (solvent consumption > 200 Mg/year and > 2 000 coated items a year)	150 g VOC/m²

[a] The total limit values are expressed in terms of mass of organic solvent (g) emitted in relation to the surface area of product (m²). The surface area of the product is defined as the surface area calculated from the total electrophoretic coating area and the surface area of any parts that might be added in successive phases of the coating process which are coated with the same coatings. The surface of the electrophoretic coating area is calculated using the formula: (2 x total weight of product shell)/(average thickness of metal sheet x density of metal sheet). The total ELVs defined in the table above refer to all process stages carried out at the same installation from electrophoretic coating, or any other kind of coating process through the final wax and polish of top-coating inclusive, as well as solvent used in cleaning of process equipment, including spray booths and other fixed equipment, both during and outside of production time.

[b] For existing plants achieving these levels may entail cross-media effects, high capital costs and long payback periods. Major step decreases in VOC emissions necessitate changing the type of paint system and/or the paint application system and/or the drying system and thus usually involves either a new installation or a complete refurbishment of a paint shop and requires significant capital investment.

12. Coating activities (metal, textile, fabric, film, plastic, paper and wooden surfaces coating)

Table 6
Limit values for coating activities in various industrial sectors

Activity and threshold	*ELV for VOC[a] (daily for ELVc and yearly for ELVf and total ELV)*
Wood coating (solvent consumption 15–25 Mg/year)	ELVc = 100[c] mg C/m³ ELVf = 25 wt-% or less of the solvent input *Or* total ELV of 1.6 kg or less of VOC/kg of solid input
Wood coating (solvent consumption 25–200 Mg/year)	ELVc = 50 mg C/m³ for drying and 75 mg C/m³ for coating ELVf = 20 wt-% or less of the solvent input *Or* total ELV of 1 kg or less of VOC/kg of solid input
Wood coating (solvent consumption > 200 Mg/year)	ELVc = 50 mg C/m³ for drying and 75 mg C/m³ for coating ELVf = 15 wt-% or less of the solvent input *Or* total ELV of 0.75 kg or less of VOC/kg of solid input
Coating of metal and plastics (solvent	ELVc = 100[c,b] mg C/m³ ELVf = 25[b] wt-% or less of the solvent input

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
consumption 5–15 Mg/year)	*Or* total ELV of 0 6 kg or less of VOC/kg of solid input
Other coating, including textile, fabric film and paper (excluding web screen printing for textiles, see printing) (solvent consumption 5–15 Mg/year)	ELVc = 100[a,b] mg C/m^3 ELVf = 25[b] wt-% or less of the solvent input *Or* total ELV of 1 6 kg or less of VOC/kg of solid input
Textile, fabric, film and paper coating (excluding web screen printing for textiles, see printing) (solvent consumption > 15 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b,c] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 1 kg or less of VOC/kg of solid input
Coating of plastic workpieces (solvent consumption 15–200 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 0 375 kg or less of VOC/kg of solid input
Coating of plastic workpieces (solvent consumption > 200 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 0 35 kg or less of VOC/kg of solid input
Coating of metal surfaces (solvent consumption 15–200 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 0 375 kg or less of VOC/kg of solid input Exception for coatings in contact with food Total ELV of 0 5825 kg or less of VOC/kg of solid input
Coating of metal surfaces (solvent consumption >200 Mg/year)	ELVc = 50 mg C/m^3 for drying and 75 mg C/m^3 for coating[b] ELVf = 20[b] wt-% or less of the solvent input *Or* total ELV of 0 33 kg or less of VOC/kg of solid input Exception for coatings in contact with food: Total ELV of 0.5825 kg or less of VOC/kg of solid input

[a] Limit value applies to coating applications and drying processes operated under contained conditions

[b] If contained coating conditions are not possible (boat construction, aircraft coating, etc.), installations may be granted exemption from these values The reduction scheme is then to be used unless this option is not technically and economically feasible In this case, the best available technique is used.

[c] If, for textile coating, techniques are used which allow reuse of recovered solvents, the limit value shall be 150 mg C/m^3 for drying and coating together

13 Coating activities (leather and winding wire coating)

Table 7
Limit values for leather and winding wire coating

Activity and threshold	*ELV for VOC (yearly for total ELV)*
Leather coating in furnishing and particular leather goods used as small consumer goods like bags, belts, wallets, etc. (solvent consumption > 10 Mg/year)	Total ELV of 150 g/m²
Other leather coating (solvent consumption 10–25 Mg/year)	Total ELV of 85 g/m²
Other leather coating (solvent consumption > 25 Mg/year)	Total ELV of 75 g/m²
Winding wire coating (solvent consumption > 5 Mg/year)	Total ELV of 10 g/kg applies for installations where average diameter of wire ≤ 0,1 mm
	Total ELV of 5 g/kg applies for all other installations

14. Coating activities (coil coating):

Table 8
Limit values for coil coating

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Existing installation (solvent consumption 25–200 Mg/year)	ELVc = 50 mg[a] C/m³ ELVf = 10 wt-% or less of the solvent input *Or* total ELV of 0,45 kg or less of VOC/kg of solid input
Existing installation (solvent consumption > 200 Mg/year)	ELVc = 50 mg[a] C/m³ ELVf = 10 wt-% or less of the solvent input *Or* total ELV of 0,45 kg or less of VOC/kg of solid input
New installation (solvent consumption 25–200 Mg/year)	ELVc = 50 mg C/m³ [a] ELVf = 5 wt-% or less of the solvent input *Or* total ELV of 0,3 kg or less of VOC/kg of solid input
New installation (solvent consumption > 200 Mg/year)	ELVc = 50 mg[a] C/m³ ELVf = 5 wt-% or less of the solvent input *Or* total ELV of 0,3 kg or less of VOC/kg of solid input

[a] If techniques are used which allow reuse of recovered solvent, the limit value shall be 150 mg C/m³.

15. Dry cleaning

Table 9
Limit values for dry cleaning

Activity	*ELV for VOC[a,b] (yearly for total ELV)*
New and existing installations	Total ELV of 20 g VOC/kg

[a] Limit value for total emissions of VOC's calculated as mass of emitted VOC per mass of cleaned and dried product

[b] This emission level can be achieved by using at least type IV machines or more efficient ones

16. Manufacturing of coatings, varnishes, inks and adhesives:

Table 10
Limit values form manufacturing of coatings, varnishes, inks and adhesives

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
New and existing installations with solvent consumption between 100 and 1 000 Mg/year	ELVc = 150 mg C/m^3 ELVf[a] = 5 wt-% or less of the solvent input *Or* total ELV of 5 wt-% or less of the solvent input
New and existing installations with solvent consumption > 1 000 Mg/year	ELVc = 150 mg C/m^3 ELVf[a] = 3 wt-% or less of the solvent input *Or* total ELV of 3 wt-% or less of the solvent input

[a] The fugitive limit value does not include solvents sold as part of a preparation in a sealed container

17 Printing activities (flexography, heat-set web offset, publication rotogravure, etc)

Table 11
Limit values for printing activities

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Heat-set offset (solvent consumption 15–25 Mg/year)	ELVc = 100 mg C/m^3 ELVf = 30 wt-% or less of the solvent input[a]
Heat-set offset (solvent consumption 25–200 Mg/year)	New and existing installations ELVc = 20 mg C/m^3 ELVf = 30 wt-% or less of the solvent input[a]
Heat-set offset (solvent consumption >200 Mg/year)	For new and upgraded presses Total ELV = 10 wt-% or less of the ink consumption[a] For existing *presses* Total ELV = 15 wt-% or less of the ink consumption[a]

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
Publication gravure (solvent consumption 25–200 Mg/year)	For new installations ELVc = 75 mg C/m^3 ELVf = 10 wt-% or less of the solvent input *Or* total ELV of 0.6 kg or less of VOC/kg of solid input For existing installations ELVc = 75 mg C/m^3 ELVf = 15 wt-% or less of the solvent input *Or* total ELV of 0.8 kg or less of VOC/kg of solid input
Publication gravure (solvent consumption > 200 Mg/year)	For new installations Total ELV = 5 wt-% or less of the solvent input For existing installations Total ELV = 7 wt-% or less of the solvent input
Packaging rotogravure and flexography (solvent consumption 15–25 Mg/year)	ELVc = 100 mg C/m^3 ELVf = 25 wt-% or less of the solvent input *Or* total ELV of 1.2 kg or less of VOC/kg of solid input
Packaging rotogravure and flexography (solvent consumption 25–200 Mg/year) and rotary screen printing (solvent consumption > 30 Mg/year)	ELVc = 100 mg C/m^3 ELVf = 20 wt-% or less of the solvent input *Or* total ELV of 1.0 kg or less of VOC/kg of solid input
Packaging rotogravure and flexography (solvent consumption > 200 Mg/year)	*For plants with all machines connected to oxidation:* Total ELV = 0.5 kg VOC/kg of solid input *For plants with all machines connected to carbon adsorption:* Total ELV = 0.6 kg VOC/kg of solid input *For existing mixed plants where some existing machines may not be attached to an incinerator or solvent recovery:* Emissions from *the machines connected to oxidizers or carbon adsorption* are below the emission limits of 0.5 or 0.6 kg VOC/kg of solid input respectively. *For machines not connected to gas treatment*: use of low solvent or solvent free products, connection to waste gas treatment when there is spare capacity and preferentially run high solvent content work on machines connected to waste gas treatment. Total emissions below 1.0 kg VOC/kg of solid input

[a] Residual solvent in the finished product is not taken into account in the calculation of the fugitive emission

18. Manufacturing of pharmaceutical products.

Table 12
Limit values for manufacturing of pharmaceutical products

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
New installations (solvent consumption > 50 Mg/year)	ELVc = 20 mg C/m^3 [a,b] ELVf = 5 wt-% or less of the solvent input[b]
Existing installations (solvent consumption > 50 Mg/year)	ELVc = 20 mg C/m^3 [a,c] ELVf = 15 wt-% or less of the solvent input[c]

[a] If techniques are used which allow reuse of recovered solvents, the limit value shall be 150 mg C/m^3

[b] A total limit value of 5% of solvent input may be applied instead of applying ELVc and ELVf

[c] A total limit value of 15% of solvent input may be applied instead of applying ELVc and ELVf

19. Conversion of natural or synthetic rubber:

Table 13
Limit values for conversion of natural or synthetic rubber

Activity and threshold	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*
New and existing installations, conversion of natural or synthetic rubber (solvent consumption > 15 Mg/year)	ELVc = 20 mg C/m^3 [a] ELVf = 25 wt-% of solvent input[b] *Or* total ELV = 25 wt-% of solvent input

[a] If techniques are used which allow reuse of recovered solvent, the limit value shall be 150 mg C/m^3

[b] The fugitive limit does not include solvents sold as part of a preparation in a sealed container

20 Surface cleaning.

Table 14
Limit values for surface cleaning

Activity and threshold	*Threshold value for solvent consumption (Mg/year)*	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*	
Surface cleaning using substances mentioned in paragraph 3 (z) (i) of this annex	1–5	ELVc = 20 mg expressed as the mass sum of individual compounds/m^3	ELVf = 15 wt-% of solvent input
	> 5	ELVc = 20 mg expressed as the mass sum of individual compounds/m^3	ELVf = 10 wt-% of solvent input

Activity and threshold	*Threshold value for solvent consumption (Mg/year)*	*ELV for VOC (daily for ELVc and yearly for ELVf and total ELV)*	
Other surface cleaning	2–10	ELVc = 75 mg C/m³ [a]	ELVf = 20 wt-% [a] of solvent input
	> 10	ELVc = 75 mg C/m³ [a]	ELVf = 15 wt-% [a] of solvent input

[a] Installations for which the average organic solvent content of all cleaning material used does not exceed 30 wt-% are exempt from applying these values

21 Vegetable oil and animal fat extraction and vegetable oil refining processes:

Table 15
Limit values for extraction of vegetable and animal fat and refining of vegetable oil

Activity and threshold	*ELV for VOC (yearly for total ELV)*	
New and existing installations (solvent consumption > 10 Mg/year)	Total ELV (kg VOC/Mg product)	
	Animal fat	1.5
	Castor	3.0
	Rape seed	1.0
	Sunflower seed	1.0
	Soya beans (normal crush)	0.8
	Soya beans (white flakes)	1.2
	Other seeds and vegetable material	3.0 [a]
	All fractionation processes, excluding degumming [b]	1.5
	Degumming	4.0

[a] Limit values for total emissions of VOC's from installations treating single batches of seeds or other vegetable material shall be set case by case by a Party on the basis of the best available techniques

[b] The removal of gum from the oil

22. Impregnation of wood

Table 16
Limit values for impregnation of wood

Activity and threshold	*ELV for TVOC (daily for ELVc and yearly for ELVf and total ELV)*
Wood impregnation (solvent consumption 25–200 Mg/year)	ELVc = 100[a] mg C/m^3 ELVf = 45 wt-% or less of the solvent input *Or* 11 kg or less of VOC/m^3
Wood impregnation (solvent consumption > 200 Mg/year)	ELVc = 100[a] mg C/m^3 ELVf = 35 wt-% or less of the solvent input *Or* 9 kg or less of VOC/m^3

[a] Does not apply to impregnation with creosote.

B. Canada

23. Limit values for controlling emissions of VOCs will be determined for stationary sources, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions, and the documents below.

(a) VOC Concentration Limits for Architectural Coatings Regulations — SOR/2009-264.

(b) VOC Concentration Limits for Automotive Refinishing Products SOR/2009-197;

(c) Proposed regulations for VOC Concentrations Limits for Certain Products;

(d) Guidelines for the Reduction of Ethylene Oxide Releases from Sterilization Applications.

(e) Environmental Guideline for the Control of Volatile Organic Compounds Process Emissions from New Organic Chemical Operations. PN1108.

(f) Environmental Code of Practice for the Measurement and Control of Fugitive VOC Emissions from Equipment Leaks. PN1106;

(g) A Program to Reduce Volatile Organic Compound Emissions by 40 Percent from Adhesives and Sealants. PN1116;

(h) A Plan to Reduce VOC Emissions by 20 Percent from Consumer Surface Coatings PN1114;

(i) Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks. PN1180;

(j) Environmental Code of Practice for Vapour Recovery during Vehicle Refueling at Service Stations and Other Gasoline Dispersing Facilities. PN1184;

(k) Environmental Code of Practice for the Reduction of Solvent Emissions from Commercial and Industrial Degreasing Facilities. PN1182;

(l) New Source Performance Standards and Guidelines for the Reduction of Volatile Organic Compound Emissions from Canadian Automotive Original Equipment Manufacturer (OEM) Coating Facilities PN1234;

(m) Environmental Guideline for the Reduction of Volatile Organic Compound Emissions from the Plastics Processing Industry PN1276;

(n) National Action Plan for the Environmental Control of Ozone-Depleting Substances (ODS) and Their Halocarbon Alternatives PN1291,

(o) Management Plan for Nitrogen Oxides (NO_x) and Volatile Organic Compounds (VOCs) — Phase I. PN1066,

(p) Environmental Code of Practice for the Reduction of Volatile Organic Compound Emissions from the Commercial/Industrial Printing Industry PN1301,

(q) Recommended CCME[5] Standards and Guidelines for the Reduction of VOC Emissions from Canadian Industrial Maintenance Coatings PN1320, and

(r) Guidelines for the Reduction of VOC Emissions in the Wood Furniture Manufacturing Sector PN1338

C. United States of America

24 Limit values for controlling emissions of VOCs from stationary sources in the following stationary source categories, and the sources to which they apply, are specified in the following documents.

(a) Storage Vessels for Petroleum Liquids — 40 Code of Federal Regulations (C F R) Part 60, Subpart K, and Subpart Ka,

(b) Storage Vessels for Volatile Organic Liquids — 40 C F.R Part 60, Subpart Kb,

(c) Petroleum Refineries — 40 C.F.R. Part 60, Subpart J,

(d) Surface Coating of Metal Furniture — 40 C.F.R. Part 60, Subpart EE;

(e) Surface Coating for Automobile and Light Duty Trucks — 40 C.F.R. Part 60, Subpart MM,

(f) Publication Rotogravure Printing — 40 C.F.R Part 60, Subpart QQ,

(g) Pressure Sensitive Tape and Label Surface Coating Operations — 40 C.F R Part 60, Subpart RR,

(h) Large Appliance, Metal Coil and Beverage Can Surface Coating — 40 C F R. Part 60, Subpart SS, Subpart TT and Subpart WW,

(i) Bulk Gasoline Terminals — 40 C F R. Part 60, Subpart XX;

(j) Rubber Tire Manufacturing — 40 C F R Part 60, Subpart BBB,

(k) Polymer Manufacturing — 40 C.F R. Part 60, Subpart DDD,

[5] Canadian Council of Ministers of the Environment

(l) Flexible Vinyl and Urethane Coating and Printing — 40 C.F.R. Part 60, Subpart FFF;

(m) Petroleum Refinery Equipment Leaks and Wastewater Systems — 40 C.F.R. Part 60, Subpart GGG and Subpart QQQ;

(n) Synthetic Fiber Production — 40 C.F.R. Part 60, Subpart HHH,

(o) Petroleum Dry Cleaners — 40 C.F.R. Part 60, Subpart JJJ,

(p) Onshore Natural Gas Processing Plants — 40 C.F.R. Part 60, Subpart KKK;

(q) SOCMI Equipment Leaks, Air Oxidation Units, Distillation Operations and Reactor Processes — 40 C.F.R. Part 60, Subpart VV, Subpart III, Subpart NNN and Subpart RRR;

(r) Magnetic Tape Coating — 40 C.F.R. Part 60, Subpart SSS,

(s) Industrial Surface Coatings 40 C.F.R. Part 60, Subpart TTT;

(t) Polymeric Coatings of Supporting Substrates Facilities — 40 C.F.R. Part 60, Subpart VVV;

(u) Stationary Internal Combustion Engines — Spark Ignition, 40 C.F.R. Part 60, Subpart JJJJ;

(v) Stationary Internal Combustion Engines — Compression Ignition, 40 C.F.R. Part 60, Subpart IIII and

(w) New and in-use portable fuel containers — 40 C.F.R. Part 59, Subpart F.

25. Limit values for controlling emissions of VOC from sources subject to National Emission Standards for Hazardous Air Pollutants (HAPs) are specified in the following documents:

(a) Organic HAPs from the Synthetic Organic Chemical Manufacturing Industry — 40 C.F.R. Part 63, Subpart F;

(b) Organic HAPs from the Synthetic Organic Chemical Manufacturing Industry, Process Vents, Storage Vessels, Transfer Operations, and Wastewater -- 40 C.F.R. Part 63, Subpart G;

(c) Organic HAPs: Equipment Leaks — 40 C.F.R. Part 63, Subpart H,

(d) Commercial ethylene oxide sterilizers — 40 C.F.R. Part 63, Subpart O;

(e) Bulk gasoline terminals and pipeline breakout stations — 40 C.F.R. Part 63, Subpart R;

(f) Halogenated solvent degreasers — 40 C.F.R. Part 63, Subpart T;

(g) Polymers and resins (Group I) — 40 C.F.R. Part 63, Subpart U;

(h) Polymers and resins (Group II) — 40 C.F.R. Part 63, Subpart W;

(i) Secondary lead smelters — 40 C.F.R. Part 63, Subpart X;

(j) Marine tank vessel loading — 40 C.F.R. Part 63, Subpart Y;

(k) Petroleum refineries — 40 C F.R Part 63, Subpart CC.

(l) Offsite waste and recovery operations — 40 C F.R Part 63, Subpart DD;

(m) Magnetic tape manufacturing — 40 C.F.R Part 63, Subpart EE;

(n) Aerospace manufacturing — 40 C.F.R. Part 63, Subpart GG;

(o) Oil and natural gas production — 40 C.F.R. Part 63, Subpart HH;

(p) Ship building and ship repair — 40 C.F.R. Part 63, Subpart II;

(q) Wood furniture — 40 C F.R. Part 63, Subpart JJ;

(r) Printing and publishing — 40 C F.R. Part 63, Subpart KK.

(s) Pulp and paper II (combustion) — C F.R. Part 63, Subpart MM.

(t) Storage tanks — 40 C.F.R. Part 63, Subpart OO;

(u) Containers — 40 C.F.R. Part 63, Subpart PP.

(v) Surface impoundments — 40 C.F R. Part 63, Subpart QQ.

(w) Individual drain systems — 40 C.F R Part 63, Subpart RR;

(x) Closed vent systems — 40 C.F.R. Part 63, Subpart SS;

(y) Equipment leaks control level 1 — 40 C.F R. Part 63, Subpart TT;

(z) Equipment leaks, control level 2 — 40 C.F.R. Part 63, Subpart UU.

(aa) Oil-Water Separators and Organic-Water Separators — 40 C.F.R. Part 63, Subpart VV;

(bb) Storage Vessels (Tanks) Control Level 2 — 40 C F R. Part 63, Subpart WW.

(cc) Ethylene Manufacturing Process Units — 40 C F.R. Part 63, Subpart XX.

(dd) Generic Maximum Achievable Control Technology Standards for several categories — 40 C.F.R Part 63, Subpart YY.

(ee) Hazardous waste combustors — 40 C.F.R. Part 63, Subpart EEE;

(ff) Pharmaceutical manufacturing — 40 C.F.R. Part 63, Subpart GGG;

(gg) Natural Gas Transmission and Storage — 40 C.F.R. Part 63, Subpart HHH.

(hh) Flexible Polyurethane Foam Production — 40 C F.R Part 63, Subpart III.

(ii) Polymers and Resins group IV — 40 C.F R. Part 63, Subpart JJJ;

(jj) Portland cement manufacturing — 40 C.F.R. Part 63, Subpart LLL.

(kk) Pesticide active ingredient production — 40 C F.R Part 63, Subpart MMM.

(ll) Polymers and resins, group III — 40 C F R. Part 63, Subpart OOO;

(mm) Polyether polyols — 40 C.F R Part 63, Subpart PPP;

(nn) Secondary aluminum production — 40 C F R Part 63, Subpart RRR.

(oo) Petroleum refineries 40 C F R Part 63, Subpart UUU.

(pp) Publicly owned treatment works — 40 C F R Part 63, Subpart VVV;

(qq) Nutritional Yeast Manufacturing — 40 C.F R Part 63, Subpart CCCC;

(rr) Organic liquids distribution (non-gasoline) — 40 C F R Part 63, Subpart EEEE.

(ss) Miscellaneous organic chemical manufacturing — 40 C F R Part 63, Subpart FFFF.

(tt) Solvent Extraction for Vegetable Oil Production — 40 C.F R Part 63, Subpart GGGG.

(uu) Auto and Light Duty Truck Coatings — 40 C F R Part 63, Subpart IIII.

(vv) Paper and Other Web Coating — 40 C F R Part 63, Subpart JJJJ;

(ww) Surface Coatings for Metal Cans — 40 C.F R Part 63, Subpart KKKK.

(xx) Miscellaneous Metal Parts and Products Coatings — 40 C F.R. Part 63, Subpart MMMM.

(yy) Surface Coatings for Large Appliances — 40 C F.R. Part 63, Subpart NNNN.

(zz) Printing, Coating and Dyeing of Fabric — 40 C F R Part 63, Subpart OOOO.

(aaa) Surface Coating of Plastic Parts and Products — 40 C F R Part 63, Subpart PPPP.

(bbb) Surface Coating of Wood Building Products — 40 C F R Part 63, Subpart QQQQ.

(ccc) Metal Furniture Surface Coating — 40 C F R. Part 63, Subpart RRRR.

(ddd) Surface coating for metal coil — 40 C F.R Part 63, Subpart SSSS.

(eee) Leather finishing operations — 40 C F.R. Part 63, Subpart TTTT;

(fff) Cellulose products manufacturing — 40 C.F R Part 63, Subpart UUUU.

(ggg) Boat manufacturing — 40 C F R Part 63, Subpart VVVV.

(hhh) Reinforced Plastics and Composites Production — 40 C F R Part 63, Subpart WWWW.

(iii) Rubber tire manufacturing — 40 C F R Part 63, Subpart XXXX.

(jjj) Stationary Combustion Engines — 40 C F R Part 63, Subpart YYYY.

(kkk) Stationary Reciprocating Internal Combustion Engines Compression Ignition — 40 C F R Part 63, Subpart ZZZZ.

(lll) Semiconductor manufacturing — 40 C.F.R. Part 63, Subpart BBBBB;

(mmm) Iron and steel foundries — 40 C.F.R. Part 63, Subpart EEEEE;

(nnn) Integrated iron and steel manufacturing — 40 C.F.R. Part 63, Subpart FFFFF;

(ooo) Asphalt Processing and Roofing Manufacturing — 40 C.F.R. Part 63, Subpart LLLLL;

(ppp) Flexible Polyurethane Foam Fabrication — 40 C.F.R. Part 63, Subpart MMMMM;

(qqq) Engine test cells/stands — 40 C.F.R. Part 63, Subpart PPPPP;

(rrr) Friction products manufacturing — 40 C.F.R. Part 63, Subpart QQQQQ;

(sss) Refractory products manufacturing — 40 C.F.R. Part 63, Subpart SSSSS;

(ttt) Hospital ethylene oxide sterilizers — 40 C.F.R. Part 63, Subpart WWWWW;

(uuu) Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities — 40 C.F.R. Part 63, Subpart BBBBBB;

(vvv) Gasoline Dispensing Facilities — 40 C.F.R. Part 63, Subpart CCCCCC;

(www) Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources — 40 C.F.R. Part 63, Subpart HHHHHH;

(xxx) Acrylic Fibers/Modacrylic Fibers Production (Area Sources) — 40 C.F.R. Part 63, Subpart LLLLLL;

(yyy) Carbon Black Production (Area Sources) — 40 C.F.R. Part 63, Subpart MMMMMM;

(zzz) Chemical Manufacturing Area Sources: Chromium Compounds — 40 C.F.R. Part 63, Subpart NNNNNN;

(aaaa) Chemical Manufacturing for Area Sources — 40 C.F.R. Part 63, Subpart VVVVVV;

(bbbb) Asphalt Processing and Roofing Manufacturing (Area Sources) — 40 C.F.R. Part 63, Subpart AAAAAAA; and

(cccc) Paints and Allied Products Manufacturing (Area Sources) — 40 C.F.R. Part 63, Subpart CCCCCCC

Appendix
Solvent management plan

Introduction

1. This appendix to the annex on limit values for emissions of VOCs from stationary sources provides guidance on carrying out a solvent management plan. It identifies the principles to be applied (paragraph 2), provides a framework for the

mass balance (paragraph 3) and provides an indication of the requirements for verification of compliance (paragraph 4).

Principles

2. The solvent management plan serves the following purposes.

   (a) Verification of compliance, as specified in the annex, and

   (b) Identification of future reduction options

Definitions

3. The following definitions provide a framework for the mass balance exercise.

   (a) Inputs of organic solvents:

   - I1 The quantity of organic solvents or their quantity in preparations purchased that are used as input into the process in the time frame over which the mass balance is being calculated;
   - I2 The quantity of organic solvents or their quantity in preparations recovered and reused as solvent input into the process. (The recycled solvent is counted every time it is used to carry out the activity.)

   (b) Outputs of organic solvents.

   - O1 Emission of VOCs in waste gases.
   - O2 Organic solvents lost in water, if appropriate taking into account wastewater treatment when calculating O5.
   - O3 The quantity of organic solvents that remains as contamination or residue in output of products from the process.
   - O4 Uncaptured emissions of organic solvents to air. This includes the general ventilation of rooms, where air is released to the outside environment via windows, doors, vents and similar openings;
   - O5 Organic solvents and/or organic compounds lost due to chemical or physical reactions (including, for example, those that are destroyed, e.g., by incineration or other waste-gas or wastewater, or captured, e.g., by adsorption, as long as they are not counted under O6, O7 or O8);
   - O6 Organic solvents contained in collected waste;
   - O7 Organic solvents, or organic solvents contained in preparations, that are sold or are intended to be sold as a commercially valuable product.
   - O8 Organic solvents contained in preparations recovered for reuse but not as input into the process, as long as they are not counted under O7;
   - O9 Organic solvents released in other ways.

Guidance on use of the solvent management plan for verification of compliance

4. The use of the solvent management plan will be determined by the particular requirement which is to be verified, as follows:

(a) Verification of compliance with the reduction option mentioned in paragraph 6 (a) of the annex, with a total limit value expressed in solvent emissions per unit product, or as otherwise stated in the annex:

(i) For all activities using the reduction option mentioned in paragraph 6 (a) of the annex, the solvent management plan should be put into effect annually to determine consumption. Consumption can be calculated by means of the following equation:

$$C = I1 - O8$$

A parallel exercise should also be undertaken to determine solids used in coating in order to derive the annual reference emission and the target emission each year:

(ii) For assessing compliance with a total limit value expressed in solvent emissions per unit product or as otherwise stated in the annex, the solvent management plan should be put into effect annually to determine emission of VOCs. Emission of VOCs can be calculated by means of the following equation:

$$E = F + O1$$

Where F is the fugitive emission of VOC as defined in subparagraph (b) (i) below. The emission figure should be divided by the relevant product parameter:

(b) Determination of fugitive emission of VOCs for comparison with fugitive emission values in the annex.

(i) Methodology: The fugitive emission of VOC can be calculated by means of the following equation:

$$F = I1 - O1 - O5 - O6 - O7 - O8$$

or

$$F = O2 - O3 + O4 + O9$$

This quantity can be determined by direct measurement of the quantities. Alternatively, an equivalent calculation can be made by other means, for instance by using the capture efficiency of the process. The fugitive emission value is expressed as a proportion of the input, which can be calculated by means of the following equation:

$$I = I1 + I2.$$

(ii) Frequency: Fugitive emission of VOCs can be determined by a short but comprehensive set of measurements. This need not to be done again until the equipment is modified.

T. Annex VII

For annex VII there is substituted the following:

Timescales under article 3

1. The timescales for the application of the limit values referred to in article 3, paragraphs 2 and 3, shall be:

(a) For new stationary sources, one year after the date of entry into force of the present Protocol for the Party in question, and

(b) For existing stationary sources, one year after the date of entry into force of the present Protocol for the Party in question or 31 December 2020, whichever is the later.

2. The timescales for the application of the limit values for fuels and new mobile sources referred to in article 3, paragraph 5, shall be the date of entry into force of the present Protocol for the Party in question or the dates associated with the measures specified in annex VIII, whichever is the later.

3. The timescales for the application of the limit values for VOCs in products referred to in article 3, paragraph 7, shall be one year after the date of entry into force of the present Protocol for the Party in question.

4. Notwithstanding paragraphs 1, 2 and 3, but subject to paragraph 5, a Party to the Convention that becomes a Party to the present Protocol between January 1, 2013, and December 31, 2019, may declare upon ratification, acceptance, approval of, or accession to, the present Protocol that it will extend any or all of the timescales for application of the limit values referred to in article 3, paragraphs 2, 3, 5 and 7, as follows:

(a) For existing stationary sources, up to fifteen years after the date of entry into force of the present Protocol for the Party in question,

(b) For fuels and new mobile sources, up to five years after the date of entry into force of the present Protocol for the Party in question, and

(c) For VOCs in products, up to five years after the date of entry into force of the present Protocol for the Party in question.

5. A Party that has made an election pursuant to article 3bis of the present Protocol with respect to annex VI and/or VIII may not also make a declaration pursuant to paragraph 4 applicable to the same annex.

U. Annex VIII

For annex VIII the following text is substituted:

Limit values for fuels and new mobile sources

Introduction

1 Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America

2. This annex specifies emission limit values for NO_x, expressed as nitrogen dioxide (NO_2) equivalents, for hydrocarbons, most of which are volatile organic compounds, for carbon monoxide (CO) and for particulate matter as well as environmental specifications for marketed fuels for vehicles

3. The timescales for applying the limit values in this annex are laid down in annex VII

A. Parties other than Canada and the United States of America

Passenger cars and light-duty vehicles

4. Limit values for power-driven vehicles with at least four wheels and used for the carriage of passengers (category M) and goods (category N) are given in table 1.

Heavy-duty vehicles

5 Limit values for engines for heavy-duty vehicles are given in tables 2 and 3 on the applicable test procedures.

Compression-ignition (CI) and spark-ignition (SI) non-road vehicles and machines

6. Limit values for agricultural and forestry tractors and other non-road vehicle/machine engines are listed in tables 4 to 6

7. Limit values for locomotives and railcars are listed in tables 7 and 8

8. Limit values for inland waterway vessels are listed in table 9.

9. Limit values for recreational crafts are listed in table 10

Motorcycles and mopeds

10 Limit values for motorcycles and mopeds are given in tables 11 and 12

Fuel quality

11 Environmental quality specifications for petrol and diesel are given in tables 13 and 14

Table 1
Limit values for passenger cars and light-duty vehicles

			Limit values[a]													
		Reference mass (RW) (kg)	Carbon monoxide		Total hydrocarbons (HC)		NMHC		Nitrogen oxides		Hydrocarbons and nitrogen oxides combined		Particulate matter		Number of particles[a] (P)	
			L1 (g/km)		L2 (g/km)		L3 (g/km)		L4 (g/km)		L2 + L4 (g/km)		L5 (g/km)		L6(#/km)	
Category	Class, application date*		Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel
Euro 5	M^b 1.1.2014	All	1.0	0.50	0.10	–	0.068	–	0.06	0.18	–	0.23	0.0050	0.0050	–	6.0×10^{11}
	N_1^c I, 1.1.2014	RW 1 305	1.0	0.50	0.10	–	0.068	–	0.06	0.18	–	0.23	0.0050	0.0050	–	6.0×10^{11}
	II, 1.1.2014	1 305 < RW≤ 1 760	1.81	0.63	0.13	–	0.090	–	0.075	0.235	–	0.295	0.0050	0.0050	–	6.0×10^{11}
	III, 1.1.2014	1 760 < RW	2.27	0.74	0.16	–	0.108	–	0.082	0.28	–	0.35	0.0050	0.0050	–	6.0×10^{11}
	N_2 1.1.2014		2.27	0.74	0.16	–	0.108	–	0.082	0.28	–	0.35	0.0050	0.0050	–	6.0×10^{11}
Euro 6	M^b 1.9.2015	All	1.0	0.50	0.10	–	0.068	–	0.06	0.08	–	0.17	0.0045	0.0045	6.0×10^{11}	6.0×10^{11}
	N_1^c I, 1.9.2015	RW ≤1 305	1.0	0.50	0.10	–	0.068	–	0.06	0.08	–	0.17	0.0045	0.0045	6.0×10^{11}	6.0×10^{11}
	II, 1.9.2016	1 305 < RW≤ 1 760	1.81	0.63	0.13	–	0.090	–	0.075	0.105	–	0.195	0.0045	0.0045	6.0×10^{11}	6.0×10^{11}
	III, 1.9.2016	1 760 < RW	2.27	0.74	0.16	–	0.108	–	0.082	0.125	–	0.215	0.0045	0.0045	6.0×10^{11}	6.0×10^{11}
	N_2 1.9.2016		2.27	0.74	0.16	–	0.108	–	0.082	0.125	–	0.215	0.0045	0.0045	6.0×10^{11}	6.0×10^{11}

* The registration, sale and entry into service of new vehicles that fail to comply with the respective limit values shall be refused as from the dates given in the column

[a] Test cycle specified by NEDC.

[b] Except vehicles whose maximum mass exceeds 2.500 kg

[c] And those category M vehicles specified in note b

Table 2
Limit values for heavy-duty vehicles steady-state cycle load-response tests

	Application date	*Carbon monoxide (g kW'h)*	*Hydro-carbons (g kW'h)*	*Total hydrocarbons (g kW h)*	*Nitrogen oxides (g kW h)*	*Particulate matter (g kW'h)*	*Smoke* (m^{-1})
B2 ("EURO V")[a]	1 10 2009	1 5	0 46	–	2 0	0.02	0 5
"EURO VI"[b]	31 12 2013	1 5	–	0 13	0 40	0 010	–

[a] Test cycle specified by the European steady-state cycle (ESC) and the European load-response (ELR) tests.
[b] Test cycle specified by the world heavy duty steady state cycle (WHSC)

Table 3
Limit values for heavy-duty vehicles — transient cycle tests

	Application date[a]	*Carbon monoxide (g kW'h)*	*Total hydro-carbons (g kW'h)*	*Non-methane hydrocarbons (g kW'h)*	*Methane*[a] *(g kW'h)*	*Nitrogen oxides (g kW'h)*	*Particulates (g kW'h)*[b]
B2 "EURO V"	1 10 2009	4 0	–	0 55	1 1	2 0	0 030
"EURO VI" (CI)[d]	31 12 2013	4 0	0.160	–	–	0 46	0 010
"EURO VI" (PI)[d]	31 12 2013	4 0	–	0 160	0 50	0 46	0 010

Note: PI = Positive ignition CI = Compression ignition
[a] The registration, sale and entry into service of new vehicles that fail to comply with the respective limit values shall be refused as from the dates given in the column
[a] For natural gas engines only.
[b] Not applicable to gas-fuelled engines at stage B2
[c] Test cycle specified by the European transient cycle (ETC) test
[d] Test cycle specified by the world heavy duty transient cycle (WHTC)

Table 4
Limit values for diesel engines for non-road mobile machines, agricultural and forestry tractors (stage IIIB)

Net power (P) (kW)	*Application date*[a]	*Carbon monoxide (g kW'h)*	*Hydrocarbons (g kW'h)*	*Nitrogen oxides (g kW'h)*	*Particulate matter (g kW'h)*
$130 \leq P \leq 560$	31 12 2010	3 5	0 19	2 0	0 025
$75 \leq P < 130$	31 12 2011	5 0	0 19	3 3	0 025
$56 \leq P < 75$	31 12 2011	5 0	0 19	3 3	0 025
$37 \leq P < 56$	31.12.2012	5,0	4 7[a]	4 7[a]	0 025

[a] With effect from the given date and with the exception of machinery and engines intended for export to countries that are not parties to the present Protocol. Parties shall permit the registration, where applicable and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table
[a] *Editor's note* This figure represents the sum of hydrocarbons and nitrogen oxides and was reflected in the final approved text by a single figure in a merged cell in the table As this text does not include tables with dividing lines, the figure is repeated in each column for clarity

Table 5
Limit values for diesel engines for non-road mobile machines, agricultural and forestry tractors (stage IV)

Net power (P) (kW)	*Application date**	*Carbon monoxide (g kW/h)*	*Hydrocarbons (g kW/h)*	*Nitrogen oxides (g kW/h)*	*Particulate matter (g kW/h)*
130 ≤ P ≤ 560	31 12 2013	3 5	0 19	0 4	0 025
56 ≤ P < 130	31 12 2014	5 0	0 19	0 4	0 025

* With effect from the given date and with the exception of machinery and engines intended for export to countries that are not parties to the present Protocol. Parties shall permit the registration, where applicable and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table

Table 6
Limit values for spark-ignition engines for non-road mobile machines

Hand-held engines		
Displacement (cm³)	*Carbon monoxide (g kW/h)*	*Sum of hydrocarbons and oxides of nitrogen (g kW/h)[a]*
Disp < 20	805	50
20 ≤ disp. < 50	805	50
Disp ≥ 50	603	72
Non-hand-held engines		
Displacement (cm³)	*Carbon monoxide (g/kW/h)*	*Sum of hydrocarbons and oxides of nitrogen (g kW/h)*
Disp < 66	610	50
66 ≤ disp. < 100	610	40
100 ≤ disp. < 225	610	16 1
Disp ≥ 225	610	12 1

Note: With the exception of machinery and engines intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration where applicable, and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table

[a] The NO_x emissions for all engine classes must not exceed 10 g/kWh

Table 7
Limit values for engines used for propulsion of locomotives

Net power (P) (kW)	*Carbon monoxide (g kW/h)*	*Hydrocarbons (g kW/h)*	*Nitrogen oxides (g kW/h)*	*Particulate matter (g kW/h)*
130 < P	3.5	0 19	2.0	0 025

Note: With the exception of machinery and engines intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table

Table 8
Limit values for engines used for propulsion of railcars

Net power (Pn (kW)	*Carbon monoxide (g kW h)*	*Sum of hydrocarbons and oxides of nitrogen (g kW h)*	*Particulate matter (g kW h)*
130 < P	3 5	4.0	0 025

Table 9
Limit values for engines for propulsion of inland waterways vessels

Displacement (liters per cylinder kW)	*Carbon monoxide (g kW h)*	*Sum of hydrocarbons and oxides of nitrogen (g kW h)*	*Particulate matter (g kW h)*
Disp < 0.9 Power ≥ 37 kW	5 0	7 5	0 4
0 9 ≤ disp < 1.2	5 0	7 2	0 3
1 2 ≤ disp < 2.5	5 0	7 2	0 2
2 5 ≤ disp < 5.0	5 0	7 2	0 2
5.0 ≤ disp. < 15	5 0	7.8	0 27
15 ≤ disp. < 20 Power < 3 300 kW	5 0	8.7	0 5
15 ≤ disp < 20 Power > 3 300 kW	5 0	9 8	0 5
20 ≤ disp. < 25	5.0	9 8	0.5
25 ≤ disp. < 30	5.0	11 0	0 5

Note: With the exception of machinery and engines intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table.

Table 10
Limit values for engines in recreational crafts

	CO (g kW h) *CO = A + B PN^n*			*Hydrocarbons (HC) (g kW h)* *HC = A + B PN^n*			*NOx*	*PM*
Engine type	*A*	*B*	*n*	*A*	*B*	*n*	*g kW h*	*g kW h*
2-stroke	150	600	1	30	100	0 75	10	Not Appl
4-stroke	150	600	1	6	50	0.75	15	Not Appl
CI	5	0	0	1.5	2	0.5	9 8	1

Abbreviation Not Appl = Not Applicable.

Note: With the exception of machinery and engines intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table

[a] Where A, B and n are constants and PN is the rate engine power in kW and the emissions are measured in accordance with the harmonised standards

Table 11
Limit values for motorcycles (> 50 cm^3; > 45 km/h)

Engine size	*Limit values*
Motorcycle < 150cc	HC = 0.8 g/km NO_x = 0.15 g/km
Motorcycle > 150cc	HC = 0.3 g/km NO_x = 0.15 g/km

Note With the exception of vehicles intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market only if they meet the respective limit values set out in the table

Table 12
Limit values for mopeds (<50 cm^3; < 45 km/h)

	Limit values	
	CO (g/km)	*HC + NO_x (g/km)*
II	10[a]	1.2

Note With the exception of vehicles intended for export to countries that are not Parties to the present Protocol, Parties shall permit the registration, where applicable, and the placing on the market only if they meet the respective limit values set out in the table

[a] For 3- and 4-wheelers, 3.5 g/km

Table 13
Environmental specifications for marketed fuels to be used for vehicles equipped with positive-ignition engines — Type: Petrol

Parameter	*Unit*	*Limits*	
		Minimum	*Maximum*
Research octane number		95	–
Motor octane number		85	–
Reid vapour pressure, summer period [a]	kPa	–	60
Distillation			
Evaporated at 100°C	% v/v	46	–
Evaporated at 150°C	% v/v	75	–
Hydrocarbon analysis			
- olefins	% v/v	–	18.0 [b]
- aromatics		–	35
- benzene		–	1
Oxygen content	% m/m	–	3.7

Parameter	Unit	Limits	
		Minimum	Maximum
Oxygenates:			
- Methanol, stabilizing agents must be added	% v/v	–	3
- Ethanol, stabilizing agents may be necessary	% v/v		10
- Iso-propyl alcohol	% v/v	–	12
- Tert-butyl alcohol	% v/v	–	15
- Iso-butyl alcohol	% v/v	–	15
- Ethers containing 5 or more carbon atoms per molecule	% v/v	–	22
Other oxygenates[c]	% v/v	–	15
Sulphur content	mg/kg	–	10

[a] The summer period shall begin no later than 1 May and shall not end before 30 September. For Parties with arctic conditions the summer period shall begin no later than 1 June and not end before 31 August and the Reid Vapour Pressure (RVP) is limited to 70 kPa.

[b] Except for regular unleaded petrol (minimum motor octane number (MON) of 81 and minimum research octane number (RON) of 91), for which the maximum olefin content shall be 21% v/v. These limits shall not preclude the introduction on the market of a Party of another unleaded petrol with lower octane numbers than set out here.

[c] Other mono-alcohols with a final distillation point no higher than the final distillation point laid down in national specifications or, where these do not exist, in industrial specifications for motor fuels.

Table 14
Environmental specifications for marketed fuels to be used for vehicles equipped with compression-ignition engines — Type: Diesel fuel

Parameter	Unit	Limits	
		Minimum	Maximum
Cetane number		51	–
Density at 15° C	kg/m^3	–	845
Distillation point 95%	°C	–	360
Polycyclic aromatic hydrocarbons	% m/m	–	8
Sulphur content	mg/kg	–	10

B. Canada

12 Limit values for controlling emissions from fuels and mobile sources will be determined, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions, and the documents below:

(a) Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations, SOR/2010–201;

(b) Marine Spark-Ignition Engine, Vessel and Off-Road Recreational Vehicle Emission Regulations, SOR/2011–10;

(c) Renewable Fuels Regulations, SOR/2010–189;

(d) Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals, SOR/2007–86;

(e) Off-Road Compression-Ignition Engine Emission Regulations, SOR/2005–32;

(f) On-Road Vehicle and Engine Emission Regulations, SOR/2003–2,

(g) Off-Road Small Spark-Ignition Engine Emission Regulations, SOR/2003–355,

(h) Sulphur in Diesel Fuel Regulations, SOR/2002–254,

(i) Gasoline and Gasoline Blend Dispensing Flow Rate Regulations SOR/2000–43;

(j) Sulphur in Gasoline Regulations, SOR/99–236,

(k) Benzene in Gasoline Regulations, SOR/97–493,

(l) Gasoline Regulations, SOR/90–247;

(m) Federal Mobile PCB Treatment and Destruction Regulations, SOR/90–5,

(n) Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products;

(o) Canada-Wide Standards for Benzene, Phase 2;

(p) Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks, PN 1180;

(q) Environmental Code of Practice for Vapour Recovery in Gasoline Distribution Networks, PN 1057,

(r) Environmental Code of Practice for Light Duty Motor Vehicle Emission Inspection and Maintenance Programs — 2nd Edition, PN 1293,

(s) Joint Initial Actions to Reduce Pollutant Emissions that Contribute to Particulate Matter and Ground-level Ozone, and

(t) Operating and Emission Guidelines for Municipal Solid Waste Incinerators, PN 1085

C. United States of America

13. Implementation of a mobile source emission control programme for light-duty vehicles, light-duty trucks, heavy-duty trucks and fuels to the extent required by sections 202 (a), 202 (g) and 202 (h) of the Clean Air Act, as implemented through,

(a) Registration of fuels and fuel additives — 40 C F R Part 79,

(b) Regulation of fuels and fuel additives — 40 C F R Part 80 including Subpart A — general provisions; Subpart B — controls and prohibitions; Subpart D — reformulated gasoline, Subpart H — gasoline sulphur standards; Subpart I — motor vehicle diesel fuel; non-road, locomotive, and marine diesel fuel; and ECA marine fuel; Subpart L — gasoline benzene, and

(c) Control of emissions from new and in-use highway vehicles and engines — 40 C.F.R Part 85 and Part 86,

14 Standards for non-road engines and vehicles are specified in the following documents:

(a) Fuel sulphur standards for non-road diesel engines — 40 C.F.R Part 80, Subpart I;

(b) Aircraft engines — 40 C.F.R Part 87,

(c) Exhaust emission standards for non-road diesel engines — Tier 2 and 3, 40 C.F.R Part 89;

(d) Non-road compression-ignition engines — 40 C.F.R Part 89 and Part 1039;

(e) Non-road and marine spark-ignition engines — 40 C.F.R Part 90, Part 91, Part 1045, and Part 1054;

(f) Locomotives — 40 C.F.R Part 92 and Part 1033,

(g) Marine compression-ignition engines 40 C.F.R Part 94 and Part 1042,

(h) New large non-road spark-ignition engines — 40 C.F.R Part 1048;

(i) Recreational engines and vehicles — 40 C.F.R Part 1051;

(j) Control of evaporative emissions from new and in-use non-road and stationary equipment — 40 C.F.R. Part 1060;

(k) Engine testing procedures — 40 C.F.R Part 1065, and

(l) General compliance provisions for non-road programs — 40 C.F.R Part 1068

V. Annex IX

1. The final sentence of paragraph 6 is deleted.

2 The final sentence of paragraph 9 is deleted

3. Note 1 is deleted.

W. Annex X

1. A new annex X is added as follows:

Annex X
Limit values for emissions of particulate matter from stationary sources

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2. In this section only, "dust" and "total suspended particulate matter" (TSP) means the mass of particles, of any shape, structure or density, dispersed in the gas phase at the sampling point conditions which may be collected by filtration under specified conditions after representative sampling of the gas to be analysed, and which remain upstream of the filter and on the filter after drying under specified conditions

3 For the purpose of this section, "emission limit value" (ELV) means the quantity of dust and/or TSP contained in the waste gases from an installation that is not to be exceeded Unless otherwise specified, it shall be calculated in terms of mass of pollutant per volume of the waste gases (expressed as mg/m^3), assuming standard conditions for temperature and pressure for dry gas (volume at 273 15 K, 101 3 kPa) With regard to the oxygen content of waste gas, the values given in the tables below for each source category shall apply. Dilution for the purpose of lowering concentrations of pollutants in waste gases is not permitted Start-up, shutdown and maintenance of equipment are excluded.

4 Emissions shall be monitored in all cases via measurements or through calculations achieving at least the same accuracy. Compliance with limit values shall be verified through continuous or discontinuous measurements, type approval, or any other technically sound method including verified calculation methods. In case of continuous measurements, compliance with the limit value is achieved if the validated monthly emission average does not exceed the ELV In case of discontinuous measurements or other appropriate determination or calculation procedures, compliance with the ELVs is achieved if the mean value based on an appropriate number of measurements under representative conditions does not exceed the value of the emission standard The inaccuracy of measurement methods may be taken into account for verification purposes.

5. Monitoring of relevant polluting substances and measurements of process parameters, as well as the quality assurance of automated measuring systems and the reference measurements to calibrate those systems, shall be carried out in accordance with CEN standards. If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply.

6. Special provisions for combustion plants referred to in paragraph 7:

(a) A Party may derogate from the obligation to comply with the ELVs provided for in paragraph 7 in the following cases.

(i) For combustion plants normally using gaseous fuel which have to resort exceptionally to the use of other fuels because of a sudden interruption in the supply of gas and for this reason would need to be equipped with a waste gas purification facility;

(ii) For existing combustion plants not operated more than 17,500 operating hours, starting from 1 January 2016 and ending no later than 31 December 2023.

(b) Where a combustion plant is extended by at least 50 MWth, the ELV specified in paragraph 7 for new installations shall apply to the extensional part affected by the change. The ELV is calculated as an average weighted by the *actual* thermal input for both the existing and the new part of the plant:

(c) Parties shall ensure that provisions are made for procedures relating to malfunction or breakdown of the abatement equipment;

(d) In the case of a multi-fuel firing combustion plant involving the simultaneous use of two or more fuels, the ELV shall be determined as the weighted average of the ELVs for the individual fuels, on the basis of the thermal input delivered by each fuel.

7. Combustion plants with a rated thermal input exceeding 50 MWth [a]

Table 1
Limit values for dust emissions from combustion plants[a]

Fuel type	*Thermal input (MWth)*	*ELV for dust (mg m⁻³)[b]*
Solid fuels	50–100	New plants: 20 (coal, lignite and other solid fuels) 20 (biomass, peat) Existing plants: 30 (coal, lignite and other solid fuels) 30 (biomass, peat)
	100–300	New plants: 20 (coal, lignite and other solid fuels) 20 (biomass, peat) Existing plants 25 (coal, lignite and other solid fuels) 20 (biomass, peat)
	>300	New plants: 10 (coal, lignite and other solid fuels) 20 (biomass, peat) Existing plants: 20 (coal lignite and other solid fuels) 20 (biomass, peat)
Liquid fuels	50–100	New plants: 20 Existing plants 30 (in general) 50 (for the firing of distillation and conversion residues within refineries from the refining of crude oil for own consumption in combustion plants)

[a] The rated thermal input of the combustion plant is calculated as the sum of the input of all units connected to a common stack. Individual units below 15 MWth shall not be considered when calculating the total rated thermal input.

Fuel type	*Thermal input (MW th)*	*ELV for dust (mg m³)*[b]
Liquid fuels	100–300	New plants 20 Existing plants 25 (in general) 50 (for the firing of distillation and conversion residues within refineries from the refining of crude oil for own consumption in combustion plants)
	>300	New plants 10 Existing plants 20 (in general) 50 (for the firing of distillation and conversion residues within refineries from the refining of crude oil for own consumption in combustion plants)
Natural gas	> 50	5
Other gases	> 50	10 30 (for gases produced by the steel industry which can be used elsewhere)

[a] In particular, the ELVs shall not apply to
- Plants in which the products of combustion are used for direct heating, drying, or any other treatment of objects or materials,
- Post-combustion plants designed to purify the waste gases by combustion which are not operated as independent combustion plants,
- Facilities for the regeneration of catalytic cracking catalysts,
- Facilities for the conversion of hydrogen sulphide into sulphur,
- Reactors used in the chemical industry,
- Coke battery furnaces,
- Cowpers,
- Recovery boilers within installations for the production of pulp,
- Waste incinerators, and
- Plants powered by diesel, petrol or gas engines or by combustion turbines, irrespective of the fuel used

[b] The O_2 reference content is 6% for solid fuels and 3% for liquid and gaseous fuels

8 Mineral oil and gas refineries

Table 2
Limit values for dust emissions released from mineral oil and gas refineries

Emission source	*ELV for dust (mg m³)*
FCC regenerators	50

9. Cement clinker production

Table 3
Limit values for dust emissions released from cement production[a]

	ELV for dust (mg m⁻³)
Cement installations, kilns, mills and clinker coolers	20

[a] Installations for the production of cement clinker in rotary kilns with a capacity >500 Mg/day or in other furnaces with a capacity >50 Mg/day. The reference oxygen content is 10%

10 Lime production.

Table 4
Limit values for dust emissions released from lime production[a]

	ELV for dust (mg m⁻³)
Lime kiln firing	20[b]

[a] Installations for the production of lime with a capacity of 50 Mg/day or more. This includes lime kilns integrated in other industrial processes, with the exception of the pulp industry (see table 9). The reference oxygen content is 11%

[b] Where the resistivity of the dust is high, the ELV may be higher, up to 30 mg/m³

11 Production and processing of metals.

Table 5
Limit values for dust emissions released from primary iron and steel production

Activity and capacity threshold	*ELV for dust (mg m⁻³)*
Sinter plant	50
Pelletization plant	20 for crushing, grinding and drying 15 for all other process steps
Blast furnace. Hot stoves (>2.5 t/hour)	10
Basic oxygen steelmaking and casting (>2.5 t/hour)	30
Electric steelmaking and casting (>2.5 t/hour)	15 (existing) 5 (new)

Table 6
Limit values for dust emissions released from iron foundries

Activity and capacity threshold	*ELV for dust (mg m³)*
Iron foundries (>20 t/day):	20
- all furnaces (cupola, induction, rotary)	
- all mouldings (lost, permanent)	
Hot and cold rolling	20 50 where a bag filter cannot be applied due to the presence of wet fumes

Table 7
Limit values for dust emissions released from non-ferrous metals production and processing

	ELV for dust (mg m³) (daily)
Non-ferrous metal processing	20

12. Glass production:

Table 8
Limit values for dust emissions released from glass production[a]

	ELV for dust (mg m³)
New installations	20
Existing installations	30

[a] Installations for the production of glass or glass fibres with a capacity of 20 Mg/day or more. Concentrations refer to dry waste gases at 8% oxygen by volume (continuous melting), 13% oxygen by volume (discontinuous melting).

13. Pulp production:

Table 9
Limit values for dust emissions released from pulp production

	ELV for dust (mg m³) (annual averages)
Auxiliary boiler	40 when firing liquid fuels (at 3% oxygen content) 30 when firing solid fuels (at 6% oxygen content)
Recovery boiler and lime kiln	50

14. Waste incineration.

Table 10
Limit values for dust emissions released from waste incineration

	ELV for dust (mg m³)
Municipal waste incineration plants (> 3 Mg/hour)	10
Hazardous and medical waste incineration (> 1 Mg/hour)	10

Note Oxygen reference dry basis, 11%.

15. Titanium dioxide production

Table 11
Limit values for dust emissions released from titanium dioxide production

	ELV for dust (mg m³)
Sulphate process, total emission	50
Chloride process, total emission	50

Note For minor emission sources within an installation, an ELV of 150 mg/m³ may be applied

16 Combustion installations with a rated thermal input < 50 MWth

This paragraph is recommendatory in character and describes the measures that can be taken insofar as a Party considers them to be technically and economically feasible for the control of particulate matter.

(a) Residential combustion installations with a rated thermal input < 500 kWth.

(i) Emissions from new residential combustion stoves and boilers with a rated thermal input < 500 kWth can be reduced by the application of:

(aa) Product standards as described in CEN standards (e.g., EN 303–5) and equivalent product standards in the United States and Canada. Countries applying such product standards may define additional national requirements taking into account, in particular, the contribution of emissions of condensable organic compounds to the formation of ambient PM; or

(bb) Ecolabels specifying performance criteria that are typically stricter than the minimum efficiency requirements of the EN product standards or national regulations

Table 12
Recommended limit values for dust emissions released from new solid fuel combustion installations with a rated thermal input < 500 kWth to be used with product standards

	Dust (mg m⁻³)
Open/closed fireplaces and stoves using wood	75
Log wood boilers (with heat storage tank)	40
Pellet stoves and boilers	50
Stoves and boilers using other solid fuels than wood	50
Automatic combustion installations	50

Note: O_2 reference content: 13%.

(ii) Emissions from existing residential combustion stoves and boilers can be reduced by the following primary measures:

(aa) public information and awareness-raising programmes regarding:

- The proper operation of stoves and boilers;
- The use of untreated wood only;
- The correct seasoning of wood for moisture content.

(bb) establishing a programme to promote the replacement of the oldest existing boilers and stoves by modern appliances; or

(cc) establishing an obligation to exchange or retrofit old appliances.

(b) Non-residential combustion installations with a rated thermal input 100 kWth–1 MWth:

Table 13
Recommended limit values for dust emissions released from boilers and process heaters with a rated thermal input of 100 kWth–1 MWth.

		Dust (mg m⁻³)
Solid fuels 100–500 kWth	New installations	50
	Existing installations	150
Solid fuels 500 kWth–1 MWth	New installations	50
	Existing installations	150

Note: O_2 reference content wood, other solid biomass and peat: 13%, coal, lignite and other fossil solid fuels 6%

(c) Combustion installations with a rated thermal input > 1–50 MWth

Table 14
Recommended limit values for dust emissions released from boilers and process heaters with a rated thermal input of 1 MWth–50 MWth

		Dust (mg m⁻³)
Solid fuels > 1–5 MWth	New installations	20
	Existing installations	50
Solid fuels > 5–50 MWth	New installations	20
	Existing installations	30
Liquid fuels > 1–5 MWth	New installations	20
	Existing installations	50
Liquid fuels >5-50 MWth	New installations	20
	Existing installations	30

Note: O_2 reference content. Wood, other solid biomass and peat. 11%. Coal, lignite and other fossil solid fuels: 6%. Liquid fuels, including liquid biofuels: 3%.

B. Canada

17. Limit values for controlling emissions of PM will be determined for stationary sources, as appropriate, taking into account information on available control technologies, limit values applied in other jurisdictions and the documents listed in subparagraphs (a) to (h) below. Limit values may be expressed in terms of PM or TPM. TPM in this context means any PM with an aerodynamic diameter of less than 100 µm

(a) Secondary Lead Smelter Release Regulations. SOR/91-155;

(b) Environmental Code of Practice for Base Metals Smelters and Refineries;

(c) New Source Emission Guidelines for Thermal Electricity Generation;

(d) Environmental Code of Practice for Integrated Steel Mills (EPS 1/MM/7);

(e) Environmental Code of Practice for Non-Integrated Steel Mills (EPS 1/MM/8);

(f) Emission Guidelines for Cement Kilns PN 1284;

(g) *Joint Initial Actions to Reduce Pollutant Emissions that Contribute to* Particulate Matter and Ground-level Ozone; and

(h) Performance testing of solid-fuel-burning heating appliances. Canadian Standards Association, B415 1-10

C. United States of America

18. Limit values for controlling emissions of PM from stationary sources in the following stationary source categories, and the sources to which they apply, are specified in the following documents.

(a) Steel Plants Electric Arc Furnaces — 40 C.F R. Part 60, Subpart AA and Subpart AAa;

(b) Small Municipal Waste Combustors — 40 C F.R Part 60, Subpart AAAA.

(c) Kraft Pulp Mills — 40 C.F R. Part 60, Subpart BB.

(d) Glass Manufacturing — 40 C F.R. Part 60, Subpart CC.

(e) Electric Utility Steam Generating Units — 40 C F.R. Part 60, Subpart D and Subpart Da;

(f) Industrial-Commercial-Institutional Steam Generating Units — 40 C F.R. Part 60, Subpart Db and Subpart Dc,

(g) Grain Elevators — 40 C.F.R Part 60, Subpart DD;

(h) Municipal Waste Incinerators — 40 C.F.R Part 60, Subpart E, Subpart Ea and Subpart Eb;

(i) Hospital/Medical/Infectious Waste Incinerators — 40 C F R Part 60, Subpart Ec;

(j) Portland Cement — 40 C.F.R. Part 60, Subpart F;

(k) Lime Manufacturing — 40 C.F.R. Part 60, Subpart HH,

(l) Hot Mix Asphalt Facilities — 40 C.F.R Part 60, Subpart I;

(m) Stationary Internal Combustion Engines Compression Ignition — 40 C.F R. Part 60, Subpart IIII;

(n) Petroleum Refineries — 40 C F R Part 60, Subpart J and Subpart Ja;

(o) Secondary Lead Smelters — 40 C F.R Part 60, Subpart L,

(p) Metallic Minerals Processing 40 C F.R. Part 60, Subpart LL.

(q) Secondary Brass and Bronze — 40 C F R Part 60, Subpart M;

(r) Basic Oxygen Process Furnaces — 40 C F.R. Part 60, Subpart N,

(s) Basic Process Steelmaking Facilities — 40 C.F.R. Part 60, Subpart Na;

(t) Phosphate Rock Processing — 40 C.F R Part 60, Subpart NN;

(u) Sewage Treatment Plant Incineration — 40 C F.R. Part 60, Subpart O,

(v) Nonmetallic Minerals Processing Plants — 40 C F.R. Part 60, Subpart OOO.

(w) Primary Copper Smelters — 40 C F R. Part 60, Subpart P,

(x) Ammonium Sulfate Manufacturing 40 C.F R Part 60, Subpart PP;

(y) Wool Fiberglass Insulation — 40 C F R Part 60, Subpart PPP.

(z) Primary Zinc Smelters — 40 C F.R Part 60, Subpart Q,

(aa) Primary Lead Smelters — 40 C F R Part 60, Subpart R,

(bb) Primary Aluminum reduction plants — 40 C F R Part 60, Subpart S;

(cc) Phosphate Fertilizer Production — 40 C.F.R. Part 60, Subparts T, U, V, W, X,

(dd) Asphalt Processing and Asphalt Roofing Manufacturing — 40 C F R Part 60, Subpart UU;

(ee) Calciners and Dryers in Mineral Industries — 40 C.F.R. Part 60, Subpart UUU.

(ff) Coal Preparation Plants — 40 C F R. Part 60, Subpart Y.

(gg) Ferroalloy Production Facilities — 40 C F R. Part 60, Subpart Z.

(hh) Residential Wood Heaters — 40 C.F R. Part 60, Subpart AAA;

(ii) Small Municipal Waste Combustors (after 11/30/1999) — 40 C F.R Part 60, Subpart AAAA.

(jj) Small Municipal Waste Combustors (before 11/30/1999) — 40 C.F.R Part 60, Subpart BBBB.

(kk) Other Solid Waste Incineration Units (after 12/9/2004) — 40 C.F R Part 60, Subpart EEEE;

(ll) Other Solid Waste Incineration Units (before 12/9/2004) — 40 C F R Part 60, Subpart FFFF.

(mm) Stationary Compression Igmtion Internal Combustion Engines — 40 C.F.R. Part 60, Subpart IIII; and

(nn) Lead Acid Battery Manufacturing Plants — 40 C F.R. Part 60, Subpart KK.

19. Limit values for controlling emissions of PM from sources subject to National Emission Standards for Hazardous Air Pollutants.

(a) Coke oven batteries — 40 C.F R. Part 63, Subpart L.

(b) Chrome Electroplating (major and Area sources) – 40 C.F.R. Part 63, Subpart N.

(c) Secondary lead smelters — 40 C F R Part 63, Subpart X;

(d) Phosphoric Acid Manufacturing Plants — 40 C.F.R Part 63, Subpart AA;

(e) Phosphate Fertilizers Production Plants — 40 C.F.R Part 63, Subpart BB;

(f) Magnetic Tape Manufacturing — 40 C.F R. Part 63, Subpart EE,

(g) Primary Aluminum— 40 C.F.R. Part 63, Subpart L;

(h) Pulp and paper II (combustion) — 40 C F R Part 63, Subpart MM;

(i) Mineral wool manufacturing — 40 C.F.R. Part 63, Subpart DDD,

(j) Hazardous waste combustors 40 C.F.R. Part 63, Subpart EEE;

(k) Portland cement manufacturing — 40 C F R Part 63, Subpart LLL;

(l) Wool fiberglass manufacturing — 40 C F.R Part 63, Subpart NNN;

(m) Primary copper — 40 C.F.R Part 63, Subpart QQQ;

(n) Secondary aluminum — 40 C F R Part 63, Subpart RRR;

(o) Primary lead smelting — 40 C.F.R. Part 63, Subpart TTT,

(p) Petroleum refineries — 40 C F.R. Part 63, Subpart UUU;

(q) Ferroalloys production — 40 C.F.R. Part 63, Subpart XXX.

(r) Lime manufacturing 40 C.F.R. Part 63, Subpart AAAAA;

(s) Coke Ovens: Pushing, Quenching, and Battery Stacks — 40 C F R Part 63, Subpart CCCCC;

(t) Iron and steel foundries — 40 C F.R. Part 63, Subpart EEEEE;

(u) Integrated iron and steel manufacturing — 40 C.F.R. Part 63, Subpart FFFFF;

(v) Site remediation — 40 C.F.R. Part 63, Subpart GGGGG.

(w) Miscellaneous coating manufacturing — 40 C.F.R. Part 63, Subpart HHHHH;

(x) Asphalt Processing and Roofing Manufacturing — 40 C.F R. Part 63, Subpart LLLLL;

(y) Taconite Iron Ore Processing — 40 C.F.R Part 63, Subpart RRRRR;

(z) Refractory products manufacturing — 40 C.F.R. Part 63, Subpart SSSSS.

(aa) Primary magnesium refining — 40 C.F.R. Part 63, Subpart TTTTT;

(bb) Electric Arc Furnace Steelmaking Facilities — 40 C F R. Part 63, Subpart YYYYY;

(cc) Iron and steel foundries — 40 C.F.R. Part 63, Subpart ZZZZZ;

(dd) Primary Copper Smelting Area Sources — 40 C.F.R. Part 63, Subpart EEEEEE;

(ee) Secondary Copper Smelting Area Sources — 40 C.F.R. Part 63, Subpart FFFFFF,

(ff) Primary Nonferrous Metals Area Sources: Zinc, Cadmium, and Beryllium — 40 C.F.R. Part 63, Subpart GGGGGG;

(gg) Lead Acid Battery Manufacturing (Area sources) — 40 C.F.R. Part 63, Subpart PPPPPP;

(hh) Glass manufacturing (area sources) — 40 C F R Part 63, Subpart SSSSSS;

(ii) Secondary Nonferrous Metal Smelter (Area Sources) — 40 C.F.R. Part 63, Subpart TTTTTT;

(jj) Chemical Manufacturing (Area Sources) — 40 C F R. Part 63, Subpart VVVVVV;

(kk) Plating and Polishing Operations (Area sources) — 40 C.F R. Part 63, Subpart WWWWWW;

(ll) Area Source Standards for Nine Metal Fabrication and Finishing Source Categories — 40 C.F R Part 63, Subpart XXXXXX;

(mm) Ferroalloys Production (Area Sources) — 40 C.F.R. Part 63, Subpart YYYYYY;

(nn) Aluminum, Copper, and Nonferrous Foundries (Area Sources) — 40 C F.R. Part 63, Subpart ZZZZZZ,

(oo) Asphalt Processing and Roofing Manufacturing (Area Sources) — 40 C.F.R. Part 63. Subpart AAAAAAA;

(pp) Chemical Preparation (Area Sources) — 40 C F.R Part 63. Subpart BBBBBBB;

(qq) Paints and Allied Products Manufacturing (Area Sources) — 40 C F.R. Part 63. Subpart CCCCCCC;

(rr) Prepared animal feeds manufacturing (Area Sources) — 40 C.F R Part 63. Subpart DDDDDDD. and

(ss) Gold Mine Ore Processing and Production (Area Sources) — 40 C.F R. Part 63. Subpart EEEEEEE.

X. Annex XI

A new annex XI is added as follows

Annex XI
Limit values for volatile organic compounds content of products

1. Section A applies to Parties other than Canada and the United States of America. section B applies to Canada and section C applies to the United States of America

A. Parties other than Canada and the United States of America

2. This section concerns the limitation of emissions of volatile organic compounds (VOCs) due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products.

3. For the purpose of section A of the present annex. the following general definitions shall apply

(a) "Substances" means any chemical element and its compounds. as they occur in the natural state or as produced by industry. whether in solid or liquid or gaseous form.

(b) "Mixture" means mixtures or solutions composed of two or more substances;

(c) "Organic compound" means any compound containing at least the element carbon and one or more of hydrogen. oxygen. sulphur. phosphorus. silicon. nitrogen. or a halogen. with the exception of carbon oxides and inorganic carbonates and bicarbonates;

(d) "Volatile organic compound (VOC)" means any organic compound having an initial boiling point less than or equal to 250° C measured at a standard pressure of 101.3 kPa;

(e) "VOC content" means the mass of VOCs. expressed in grams/litre (g/l). in the formulation of the product in its ready to use condition. The mass of VOCs in a given product which react chemically during drying to form part of the coating shall not be considered part of the VOC content;

(f) "Organic solvent" means any VOC which is used alone or in combination with other agents to dissolve or dilute raw materials, products, or waste materials, or is used as a cleaning agent to dissolve contaminants, or as a dispersion medium, or as a viscosity adjuster, or as a surface tension adjuster, or as a plasticiser, or as a preservative.

(g) "Coating" means any mixture, including all the organic solvents or mixtures containing organic solvents necessary for its proper application, which is used to provide a film with decorative, protective or other functional effect on a surface.

(h) "Film" means a continuous layer resulting from the application of one or more coats to a substrate,

(i) "Water-borne coatings (WB)" means coatings the viscosity of which is adjusted by the use of water;

(j) "Solvent-borne coatings (SB)" means coatings the viscosity of which is adjusted by the use of organic solvent;

(k) "Placing on the market" means making available to third parties, whether in exchange for payment or not. Importation into the Parties customs territory shall be deemed to be placing on the market for the purposes of this annex.

4. "Paints and varnishes" means products listed in the subcategories below, excluding aerosols. They are coatings applied to buildings, their trim and fitting, and associated structures for decorative, functional and protective purpose:

(a) "Matt coatings for interior walls and ceilings" means coatings designed for application to indoor walls and ceilings with a gloss < 25 @ 60 degrees;

(b) "Glossy coatings for interior walls and ceilings" means coatings designed for application to indoor walls and ceilings with a gloss > 25 @ 60 degrees;

(c) "Coatings for exterior walls of mineral substrate" means coatings designed for application to outdoor walls of masonry, brick or stucco,

(d) "Interior/exterior trim and cladding paints for wood, metal or plastic" means coatings designed for application to trim and cladding which produce an opaque film. These coatings are designed for either a wood, metal or a plastic substrate. This subcategory includes undercoats and intermediate coatings;

(e) "Interior/exterior trim varnishes and wood stains" means coatings designed for application to trim which produce a transparent or semi-transparent film for decoration and protection of wood, metal and plastics. This subcategory includes opaque wood stains. Opaque wood stains means coatings producing an opaque film for the decoration and protection of wood, against weathering, as defined in EN 927-1, within the semi-stable category,

(f) "Minimal build wood stains" means wood stains which in accordance with EN 927-1:1996, have a mean thickness of less than 5µm when tested according to ISO 2808 1997, method 5A,

(g) "Primers" means coatings with sealing and/or blocking properties designed for use on wood or walls and ceilings;

(h) "Binding primers" means coatings designed to stabilize loose substrate particles or impart hydrophobic properties and/or to protect wood against blue stain.

(i) "One-pack performance coatings" means performance coatings based on film-forming material. They are designed for applications requiring a special performance, such as primer and topcoats for plastics, primer coat for ferrous substrates, primer coat for reactive metals such as zinc and aluminium, anticorrosion finishes, floor coatings including for wood and cement floors, graffiti resistance, flame retardant, and hygiene standards in the food or drink industry or health services.

(j) "Two-pack performance coatings" means coatings with the same use as one-performance coatings but with a second component (e.g. tertiary amines) added prior to application.

(k) "Multicoloured coatings" means coatings designed to give a two-tone or multiple-colour effect, directly from the primary application.

(l) "Decorative effect coatings" means coatings designed to give special aesthetic effects over specially prepared pre-painted substrates or base coats and subsequently treated with various tools during the drying period.

5. "Vehicle refinishing products" means products listed in the subcategories below. They are used for the coating of road vehicles, or part of them, carried out as part of vehicle repair, conservation or decoration outside of manufacturing installations. In this respect, "road vehicle" means any motor vehicle intended for use on the road, being complete or incomplete, having at least four wheels and a maximum design speed exceeding 25 km/h, and its trailers, with the exception of vehicles which run on rails and of agricultural and forestry tractors and all mobile machinery.

(a) "Preparatory and cleaning" means products designed to remove old coatings and rust, either mechanically or chemically, or to provide a key for new coatings.

(i) Preparatory products include gunwash (a product designed for cleaning spray-guns and other equipment), paint strippers, degreasers (including anti-static types for plastic) and silicone removers;

(ii) 'Pre-cleaner' means a cleaning product designed for the removal of surface contamination during preparation for and prior to the application of coating materials.

(b) "Body filler/stopper" means heavy-bodied compounds designed to be applied to fill deep surface imperfections prior to the application of the surfacer/filler.

(c) "Primer" means any coating that is designed for application to bare metal or existing finishes to provide corrosion protection prior to application of a primer surfacer.

(i) 'Surfacer/filler" means a coating designed for application immediately prior to the application of topcoat for the purpose of corrosion resistance, to ensure adhesion of the topcoat, and to promote the formation of a uniform surface finish by filling in minor surface imperfections.

(ii) "General metal primer" means a coating designed for application as primers, such as adhesion promoters, sealers, surfacers, undercoats, plastic primers, wet-on-wet, non-sand fillers and spray fillers;

(iii) "Wash primer" means coatings containing at least 0.5% by weight of phosphoric acid designed to be applied directly to bare metal surfaces to provide corrosion resistance and adhesion; coatings used as weldable primers; and mordant solutions for galvanized and zinc surfaces.

(d) "Topcoat" means any pigmented coating that is designed to be applied either as a single-layer or as a multiple-layer base to provide gloss and durability. It includes all products involved such as base coatings and clear coatings:

(i) "Base coatings" means pigmented coatings designed to provide colour and any desired optical effects, but not the gloss or surface resistance of the coating system;

(ii) "Clear coating" means a transparent coating designed to provide the final gloss and resistance properties of the coating system.

(e) "Special finishes" means coatings designed for application as topcoats requiring special properties, such as metallic or pearl effect, in a single layer, high-performance solid-colour and clear coats, (e.g., anti-scratch and fluorinated clear coat), reflective base coat, texture finishes (e.g., hammer), anti-slip, under-body sealers, anti-chip coatings, interior finishes; and aerosols

6. Parties shall ensure that the products covered by this annex which are placed on the market within their territory comply with the maximum VOC content as specified in tables 1 and 2. For the purposes of restoration and maintenance of buildings and vintage vehicles designated by competent authorities as being of particular historical and cultural value, Parties may grant individual licences for the sale and purchase in strictly limited quantities of products which do not meet the VOC limit values laid down in this annex. Parties may also exempt from compliance with the above requirements products sold for exclusive use in an activity covered by annex VI and carried out in a registered or authorized installation complying with that annex.

Table 1
Maximum VOC content for paints and varnishes

Product subcategory	*Type*	*(g/l)**
Interior matt wall and ceilings (Gloss ≤ 25@60°)	WB	30
	SB	30
Interior glossy walls and ceilings (Gloss > 25@60°)	WB	100
	SB	100
Exterior walls of mineral substrate	WB	40
	SB	430
Interior/exterior trim and cladding paints for wood and metal	WB	130
	SB	300
Interior/exterior trim varnishes and wood stains, including opaque wood stains	WB	130
	SB	400
Interior and exterior minimal build wood stains	WB	130
	SB	700

Product subcategory	*Type*	*(g/l)**
Primers	WB	30
	SB	350
Binding primers	WB	30
	SB	750
One pack performance coatings	WB	140
	SB	500
Two-pack reactive performance coatings for specific end-use	WB	140
	SB	500
Multi-coloured coatings	WB	100
	SB	100
Decorative effects coatings	WB	200
	SB	200

* g/l ready to use

Table 2
Maximum VOC content for vehicle refinishing products

Product Subcategory	*Coatings*	*VOC (g/l)**
Preparatory and cleaning	Preparatory	850
	Pre-cleaner	200
Bodyfiller/stopper	All types	250
Primer	Surfacer/filler and general (metal) primer	540
	Wash primer	780
Topcoat	All types	420
Special finishes	All types	840

* g/l of ready-for-use product. Except for "preparatory and cleaning", any water content of the product ready for use should be discounted

B. Canada

7 *Limit values for controlling emissions of VOCs from the use of consumer* and commercial products will be determined, as appropriate, taking into account information on available control technologies, techniques and measures, limit values applied in other jurisdictions, and the documents below.

(a) VOC Concentration Limits for Architectural Coatings Regulations, SOR/2009-264;

(b) VOC Concentration Limits for Automotive Refinishing Products, SOR/2009-197;

(c) Regulations Amending the Prohibition of Certain Toxic Substances Regulations, 2005 (2-Methoxyethanol, Pentachlorobenzene and Tetrachlorobenzenes), SOR/2006-279;

(d) Federal Halocarbon Regulations, SOR/2003-289;

(e) Prohibition of Certain Toxic Substances Regulations, SOR/2003-99,

(f) Solvent Degreasing Regulations, SOR/2003-283;

(g) Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations, SOR/2003-79;

(h) Order Adding Toxic Substances to Schedule 1 to the Canadian Environmental Protection Act, 1999;

(i) Notice with Respect to Certain Substances on the Domestic Substances List (DSL);

(j) Order Amending Schedule 1 to the Canadian Environmental Protection Act, 1999 (Miscellaneous Program);

(k) Ozone-depleting Substances Regulations, SOR/99-7;

(l) Proposed regulations for VOC Concentrations Limits for Certain Products;

(m) Proposed notice requiring the preparation and implementation of pollution prevention plans in respect of specified substances on Schedule 1 of the Canadian Environmental Protection Act, 1999, related to the resin and synthetic rubber manufacturing sector;

(n) Proposed notice requiring the preparation and implementation of pollution prevention plans in respect of specified substances on Schedule 1 of the Canadian Environmental Protection Act, 1999, implicated in the polyurethane and other foam sector (except polystyrene);

(o) Notice with Respect to Certain Hydrochlorofluorocarbons;

(p) Notice with Respect to Certain Substances on the Domestic Substances List (DSL); and

(q) Environmental Code of Practice for the Reduction of Solvent Emissions from Dry Cleaning Facilities, PN 1053.

C. United States of America

8. Limit values for controlling emissions of VOCs from sources subject to National Volatile Organic Compound Emission Standards for Consumer and Commercial Products are specified in the following documents:

(a) Automobile refinish coatings — 40 C.F.R. Part 59, Subpart B;

(b) Consumer products — 40 C.F.R. Part 59, Subpart C;

(c) Architectural coatings — 40 C.F.R. Part 59, Subpart D; and

(d) Aerosol coatings — 40 C.F.R. Part 59, Subpart E.